

# American Aviation

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## Fortnightly Review

### Aero Public Active

ON DEC. 19, 1938, a new phase of aviation's promotional history was begun, we believe. With Captain Gill Robb Wilson leading a figurative bombing flight, with Grant Mason of the Civil Aeronautics Authority on the right wing and Mayor Harold H. Burton of the U. S. Conference of Mayors on the left, the last vestige of the old B.A.C.-N.A.A. lethargy was blasted and the way cleared for an educational forum to aid existing civic organizations in doing their patriotic part in expanding aviation in the U.S.A.

It all happened when about seventy-five aviation leaders and representatives of various national civic organizations having the public interest at heart met in a joint meeting at the Mayflower Hotel. At this writing we do not know the whole story. However, there is unmistakable evidence that something new—spontaneous—promising—has taken place and that both the C.A.A. and the Army are very well pleased to see the newly-aroused public interest. Both of these agencies need public support.

Early in the year (tentatively planned for Feb. 20-22) there will be some sort of educational meeting for the representatives of civic organizations. This meeting may be sponsored by a temporary group that may call itself the National Aeronautic Council. But what they sponsor will have no relation to that impotent Cleveland meeting of 1938 called a national planning conference. The meeting of 1939 seems destined to be one where aircraft manufacturers, scheduled airlines, non-scheduled flyers, the Civil Aeronautics Authority, the

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## Gov't. Factories Unlikely for Emergency Aircraft Program

### U. S. AIRPORT AID BELIEVED CERTAIN

2,300 Airfields May Be Included in  
Program Along With Traffic  
Control

Little doubt remains that the Civil Aeronautics Authority will recommend a federal aid program for airports. At least, the report of the survey which will be handed the Authority by the survey staff will strongly favor federal participation on a large scale.

Just what the report will contain in the way of figures depends upon the Authority's action during January. The report is to be given Congress by Feb. 1. But the recommendations that are included in the survey report to the Authority recommend federal aid for something like 2300 airports, of which about 200 are airline stops at present and some 600 others are airports for cities and towns which logically will be included in airline and feeder expansion.

Cost of such a program might run as high as \$275,000,000 of federal money, with a municipal participation to the extent of \$115,000,000, or a total airport program of close to \$400,000,000.

It is fully expected that the report will include recommendations to ex-

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### Weather Chief



F. W. REICHELDERFER

Who Has Been Appointed Chief of  
The U. S. Weather Bureau, Suc-  
ceeding the Late Dr. Willis  
Gregg.

Story on Page 3

### Talk of U. S. Plants Discounted; Congress to Hear Plans First Week in January

DESPITE much current talk about "government factories" as part of the air defense program which will be presented to Congress during its first week of convening, it is considered exceedingly unlikely that the federal government will go into aircraft building on its own.

The fear of government factories' has had the industry worried and there is plenty of reason for believing that the White House was giving serious consideration to such a move. But those on the inside are in a position to bet plenty of dough that there will be no government factories in the program when it is announced.

Furthermore, it is not likely that any Congressional clamoring—and there will be some—for government factories will get to first base in the final analysis.

Among all the endless amount of gossip and whisperings about the rearmament program, it can be said with a large measure of reliability that the most that the government might do in the way of building plants would be to construct storage space, depots, and the like. It is very possible that if an emergency becomes crystallized the government might build a number of aircraft factories—but would depend upon the private manufacturers to operate them.

In other words, private industry will be relied upon to furnish the nation with its aircraft, aircraft engines, and accessories, and in an emergency the government would undertake to provide plant facilities for faster production.

Meanwhile, the capital and the industry were awaiting the pronouncement of the President. At press time the President was expected to eliminate national defense from his opening message on Jan. 3, but would send a special message to Congress within two days thereafter, asking for immediate passage of funds.

The amount of funds to be requested was still a matter of speculation. Some sources gave the figure as \$100,000,000 for the Army Air Corps as the first step in the building of some 10,000

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## Private Flyer Gets a Needed Break, Green Light on Regulation Revisions

As the year 1938 drew to a close the nation's private flyer found himself in a far better position in his relationships with the federal government than at any time in the past. Since the CAA stepped into existence in August one development after another has lifted the status of private flying, and further developments early in 1939 should see him recognized to an even greater extent.

First of a series of moves in December saw the recently created private flying section raised to the status of a private flying division, a jump of no mean importance in the complicated maze of government organization. Grove Webster, chief of the section, became chief of the division and for the first time it could be said that pri-

vate or non-scheduled aviation actually had a distinct and separate slice of the federal aviation agency all of its own.

As a corollary to this move, Mr. Webster will have two sections in his charge, an analysis section and another for development. Appointments to those positions were almost definitely decided as this issue went to press. It was expected that both would be men who had been in the Bureau of Air Commerce but who had not previously had the chance to "go to town" on private flying.

Next important move was the appointment of William C. Rochford as chief of the regulation section of the Bureau of Safety Regulation and Information, headed by George Vest.

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## Airports

(Continued from page 1)

pand the airways system by some 9,000 miles to make a total of about 33,000 miles of airways in the U. S. proper.

Although it has not been officially confirmed, it is possible that the report will also urge that the federal government take over operation and maintenance of traffic control towers at busy terminals. Perhaps 70 or 80 such terminals would be included in the initial operation. Some cities would welcome such a move since they consider the traffic problem of federal character and a needless local burden. On the other hand, this proposal will meet with opposition from some large centers and it is not at all certain that when the report finally goes to Congress this provision will be retained.

The theory of traffic control is to extend the jurisdiction of the federal government to include control of airways throughout and not merely to the airport zone. At present federal control of airways is relinquished to localities when the airplane approaches for a landing. There is strong sentiment in some quarters that since traffic into large airline centers is interstate in character that the federal government should control it.

In sum and substance, the recommendations at present call for federal aid for all airway costs, all airport traffic control costs, all airport surface costs and expenses for paving and lights.

Without doubt the most impressive argument for federal aid for airports has been set forth by the U. S. Conference of Mayors of which Paul V. Betters is executive director. Mayor Harold Burton of Cleveland presented the report at the National Aeronautic Council meeting in Washington Dec. 19. The report was prepared by the Conference sub-committee on airports, members of which are O. M. Mosier, vice president of American Airlines; Major Jack Berry, manager of Cleveland Airport; Charles Morris, director of aeronautics for Connecticut; Lieut. Richard Aldworth, superintendent of Newark Airport; Earl Mallory of the American Municipal Association, and Mr. Betters.

In the main the report finds that the Civil Aeronautics Act of 1938 provides ample authorization for federal airport aid without any further legislation. In Section 302 (a), the report said, the CAA Administrator is empowered to designate and establish civil airways and all necessary air navigation facilities and to acquire, establish, operate and maintain in whole or in part "air navigation facilities at and upon any municipally owned or other landing area."

Then the report points out that in the definition of "air navigational facilities" it is very clearly stated in the Act that an air navigation facility includes landing areas lights, any apparatus for the dissemination of weather information, radio-directional finding and the like. From the standpoint of safety alone, the report said, Congress has given complete authority to the CAA to aid airports and even to construct and maintain them if necessary.

### Urge Carolina Department

Raleigh, N. C., Dec. 14—An executive committee meeting of the North and South Carolina Aero Club ended here today in favor of a department of aviation under the state department of conservation. The proposal will be presented to the legislature in January. Dr. F. M. Boldridge is club president.

## 20th Year



EARL N. FINDLEY

Editor and publisher of *U. S. Air Services*, which completes twenty years of continuous publication with its January issue. It is the oldest monthly aeronautical magazine in the country. In a letter to the aircraft industry, Leighton W. Rogers, president of the Aeronautical Chamber of Commerce, said: "With all modesty and without any attempt to dictate the policies of the industry, Earl Findley has been a most consistent friend of American aviation, a knowing and constructive supporter of our industry . . . There are innumerable occasions on record when Earl went out of his way, at considerable expense to himself in both time and energy, to present policies of importance to the growth of the industry and the development of aviation generally." *U. S. Air Services* maintains offices in the Transportation Bldg., Washington, D. C.

## Gov't Factories

(Continued from page 1)

aircraft. But as this issue went to press the matter was entirely in the hands of the President. There was no inkling of his final decision. At a minimum, however, there will be sufficient funds to put every aircraft and engine manufacturer at work, most of them at capacity.

Of special interest to those expecting orders is the fact that Congress will be asked to appropriate funds immediately, completely outside the realm of fiscal year procedures. In other words, the funds would be available after passage of the measure rather than waiting until the fiscal year begins on July 1, 1939.

A few more contracts may be awarded under the current regular funds. The North American contract announced earlier in December was a sizable order, and in March the bombing competition at Dayton will attract much interest and probably will result in orders. It is believed that there are enough funds available at present for a large order of attack bombers.

By that time, however, the emergency program should be under way, or at least the outcome known. One of the important hurdles to overcome is a change in the procurement law to permit direct negotiations between the War Department and the manufacturers, but no difficulty is expected in getting this change enacted into law. It is an essential item in the program.

## CAA to Try Out Pilot Training on Small Scale; Subsidy Talk Premature

The Civil Aeronautics Authority plans to try out on a small scale in a few established educational centers which have already pioneered in the field, a method of civilian training of flyers that later can be expanded on a nationwide scale if the plan proves sound, according to Grant Mason, member of Authority, in a talk Dec. 19 to the National Aeronautic Council in Washington.

"Unfortunately," Mr. Mason said, "the impression has been broadcast that such a plan already has been or immediately will be put into effect. The facts are that the Authority intends to proceed without undue haste."

Outlining the importance which the CAA places on the expansion of private flying in the U. S., Mason said the Authority "has been exploring this field to determine what can be done to encourage and develop this phase of aviation. Realization that certain European countries are greatly more advanced in private flying than we are, combined with recently disturbed world conditions, has given our program added impetus. Any program that is fostered by the Authority must be so soundly conceived and executed that it will be continuing and lasting."

The first year of these experimental schools, he said, would be devoted to primary courses in flying. "In subsequent years, in order to protect the investment already made in flight training, the students will be given additional flying time. Civilian pilots in great numbers will promote civil aviation as never before in this country and also will represent a reservoir of flyers for national defense."

"Through the full use of existing agencies there is no reason why an additional 20,000 pilots and an equal number of mechanics cannot be trained every year."

The CAA has been bending over backwards to make it clear that the civilian program, as now planned, will be small for the first year and that it is not ready to go into effect. Newspaper stories have indicated a huge civil training program, much to the deterring effect on aviation schools. Although there has been much talk of subsidies and hundreds of "plans" have been floating into the CAA, no large-scale subsidy plan is in the offing.

Chief instigator of the educational plans is Robert H. Hinckley, member of the Authority, who has expressed an avid interest in private flying and methods for expanding the lightplane

manufacturing production. In all of the discussions, the CAA has conferred closely step by step with Assistant Secretary of War Louis Johnson.

### W. VA. AIRWAY

Charleston Gets Selection But Lighted Alternate Provided

Following a hearing Nov. 17 on the location of an airway through West Virginia, a decision was reached to construct the airway from Washington to Cincinnati via Elkins, Charleston, Huntington, all in West Virginia, and Portsmouth, Ohio, according to Clinton M. Hester, CAA Administrator. In order to appease the demands of Clarksburg and Parkersburg, W. Va., however, a lighted airway will be built through those cities from Elkins in order to provide alternate service.

Charles I. Stanton, chief of the airways engineering division, said that leases are being negotiated and that actual construction will start in the spring. Radio range stations will be built at airport stops and an emergency field will be constructed in the neighborhood of Front Royal, Va.

### AIR FREIGHT PLANS

Lynchburg Air Service to Open Florida Line Soon

An unscheduled air freight service between Florida and points in Virginia and Maryland is contemplated by Lynchburg Air Transport and Sales Co., Lynchburg, Va., according to A. D. F. White, vice-president. With expectations of starting operations in January, the company hopes to carry perishable produce from Florida to northern cities, with such products as shoes, candy and parts on south-bound trips. Preliminary produce arrangements have already been made.

W. W. Edmondson is president of the flying service which operates a flying school with 84 students, one of the largest such schools in the east. White said his concern would use a tri-motored Stinson T, powered with 215-hp. Lycomings, and would purchase additional equipment if the service proves satisfactory.

### Hester to Montana

Clinton M. Hester, CAA Administrator, will address a meeting of all chambers of commerce of the state of Montana on Jan. 12 at Great Falls, Mont. Officials of Western Air Express, Inland Air Lines and Northwest Airlines will be present.

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## 35th ANNIVERSARY OF FIRST FLIGHT

Orville Wright, 67, Honored at Dayton; Fog Cuts Kitty Hawk Celebration

The thirty-fifth anniversary of man's first successful flight passed quietly Dec. 17. There were celebrations at Kitty Hawk, N. C., site of the first flight made by Orville and Wilbur Wright, and at Dayton, O., home of Orville Wright. There were a few scattered local observances but the Civil Aeronautics Authority and the National Aeronautic Association let the day pass without any celebrations planned.

Fog spoiled an aerial display arranged at Kitty Hawk. Some 182 Navy planes on aircraft carriers 100 miles away were unable to pass in review before the Wright Memorial, but W. O. Saunders, editor and writer of *Elizabeth City, N. C.*, presided at a brief ceremony at the base of the huge concrete pylon. Capt. John T. Daniels and Adam Etheridge, now retired, veterans of the Coast Guard who aided the Wrights in 1903, tendered a wreath which was hoisted to its place on the monument. A. W. Drinkwater, president of the Kill Devil Hill Memorial Association, who telegraphed the news of the first flight, was present. On-lookers were Army and Navy officials.

At Dayton Orville Wright, who is now 67 years old, was honored at a civic ceremony at which Henry Ford was a guest. Others who were present included Col. E. A. Deeds, Charles F. Kettering, Brig. Gen. A. W. Robins and Maj. Albert W. Stevens. A cedar wreath was laid on the grave of Wilbur Wright in Woodland Cemetery.

## Dr. H. L. Dryden Gives

### Wright Brothers' Talk

Speaking on "Turbulence and the Boundary Layer," Dr. Hugh L. Dryden, chief of the mechanics and sound division of the U. S. Bureau of Standards, delivered the second Wright Brothers' Lecture at Columbia University on Dec. 17, the 35th anniversary of the first flights at Kitty Hawk, N. C. The lecture is sponsored by the Institute of the Aeronautical Sciences and is endowed by the Vernon Lynch Fund.

Dr. Dryden reviewed the boundary layer work which the Bureau of Standards has been carrying out over the past 10 years. Paying tribute to the Wright Brothers, Dr. Dryden said, "That first successful flight of man in a power-driven aircraft just 35 years ago today was the culmination of a carefully planned scientific study of the problems of flight." The lecture is given on alternate years by American and foreign scientists. Dr. Dryden's talk was given simultaneously at 25 branches of the Institute of the Aeronautical Sciences located in cities from coast to coast, by selected speakers. Last year's address was given by Prof. B. Melville Jones, Cambridge University, England.

## Curtiss Shop Burns

Hammondsport, N. Y., Dec. 13—The bicycle shop once occupied by Glenn Curtiss, aviation pioneer and inventor, was destroyed yesterday in a fire of unknown origin which swept a business block. The frame structure on Pultney Square was the scene of Curtiss' experiments which resulted in the first airplane to be flown in a public exhibition.

## \$300,000 Joint Advertising Plans of Airlines and Mfrs. Almost O K

The cooperative advertising plans of the airlines and aircraft manufacturers are moving forward with hopes that the initial advertising will get under way in March. The joint program has been in the process of formation for some time.

Each of the airlines with the exception of one of the small lines has made its pledge, which means that the air transport industry has raised its \$150,000 and is now awaiting pledges from the manufacturers and vendors. Up to Dec. 16 approximately half of the \$150,000 asked of them has been pledged.

When the remaining \$75,000 comes from the manufacturers and vendors, the special advertising committee of the Air Transport Association, headed by Charles Rheinstrom, vice-president of sales for American Airlines, will hear representatives of advertising agencies and then choose an agency. The fund will be administered by a committee of five from the airlines and two representatives from the manufacturers. Harold Crary, vice-president-traffic of United Air Lines, has been active with Rheinstrom in arranging the cooperative program.

## Annual NAA Meeting in St. Louis Jan. 15-17

Louis Johnson, Assistant Secretary of War, and Oswald Ryan, member of the Civil Aeronautic Authority, are among the headline speakers scheduled to speak at the annual meeting of the National Aeronautic Association in St. Louis Jan. 15-17.

Other speakers on the program include Senator-elect James Mead of New York; Congressman Dow W. Harter, of Ohio; Clinton M. Hester, CAA Administrator; General H. H. Arnold, Chief of the Army Air Corps; General Frank Andrews, chief of the General Headquarters Air Force; Jimmie Doolittle, aviation director of the Shell Oil Co., and Roscoe Turner.

Delegates are expected to attend from many sections of the country.

## Air Safety Board Branch

The first of several projected branch offices has been opened by the CAA's Air Safety Board at 320 Broadway, Santa Monica, Cal. William F. Centner, senior air safety investigator, is in charge, and is being assisted by Glenn L. Riddle, air safety investigator, and Phil C. Salzman, air safety investigator. The Santa Monica office has been opened to expedite the investigation of accidents in that region. Similar branches will be established in other localities as the need for them demands, according to Col. Sumpter Smith, chairman of the Air Safety Board.

## Aviation Calendar

- Jan. 4-5—Air Rendezvous, private and sportsman flyers, Orlando, Fla.
- Jan. 6-8—11th Annual All-American Air Maneuvers, and midyear meeting, Florida Aviation Association, Miami, Fla.
- Jan. 7—Professional Flight Instructors of Florida, Hotel Columbus, Miami.
- Jan. 9-13—Annual meeting, Society of Automotive Engineers, National Defense Day, Book-Cadillac Hotel, Detroit.
- Jan. 15—American Association of Airport Executives, St. Louis.
- Jan. 15-17—NAA Annual Convention, St. Louis.
- Jan. 26—Annual Meeting, Aeronautical Chamber of Commerce, New York City.
- Feb. 20-22—2nd National Aeronautic Planning Conference, Washington, D. C.
- Mar. 2-4—Southwest Aviation Conference, Ft. Worth, Tex.
- Mar. 29—Annual Luncheon Meeting, Aeronautical Section, National Safety Council, New York City.
- June 19—Annual Meeting, Florida Aviation Association, West Palm Beach.
- June 21-30—Florida Air Tour to New York World's Fair (Starts from Jacksonville).
- June 24-July 9—10th Annual National Soaring Contest, Elmira, N. Y.
- July 8-23—2nd International Aeronautical Exhibition, Brussels, Belgium.

## Navy Maneuvers in Atlantic and Indies to Use 600 Aircraft

Spring Naval maneuvers will be held in the West Indian waters and the Atlantic Ocean between Jan. 1 and Apr. 1, the Navy Department announced Dec. 17. About 140 surface ships of the U. S. Fleet will participate and about 600 aircraft of various types. Personnel will total 3,000 officers and 50,000 men.

The fleet maneuvers have been officially designated as Fleet Problem 20 and are designed to test the fleet's ability to ward off an attack on vital areas on the eastern coast as well as to protect the Panama Canal. There will be a "black" fleet defending the coast and a "white" fleet attacking, these being under the command respectively of Vice-Admiral Adolphus Andrews and Admiral E. C. Kalbfus. The fleet will be in command of Admiral Claude C. Bloch.

The Atlantic Squadron and the East Coast Fleet Marine Force under Rear Admiral A. W. Johnson will conduct base defense operations in the Culebra Area during the third quarter just before and after Fleet Problem 20.

Upon completion of the maneuvers the entire fleet will visit the New York World's Fair, stopping at Norfolk en route.

## NASAO Head



CHARLES L. MORRIS

Commissioner of Aeronautics of Connecticut who was recently elected president of the National Association of State Aviation Officials.

## F. W. REICHELDERFER IS WEATHER CHIEF

Naval Officer Has Wide Aviation Experience; Established Air Mass, Frontal Analysis Methods

Lieut. Comdr. Francis W. Reichelderfer, pioneer in the establishment of the meteorological services now used by U. S. aviation, has been appointed chief of the United States Weather Bureau, taking the post vacated by Dr. Willis R. Gregg, who died in Chicago on Sept. 14.

A native of Harlan, Ind., and a graduate of Northwestern University in 1917, Comdr. Reichelderfer saw war service as an ensign on aerological duty with the Naval Reserve Force for aviation at stations in the North Atlantic anti-submarine patrol. In the immediate post-war years he qualified as a pilot in the heavier-than-air, lighter-than-air and free balloon branches of the Naval aeronautical service.

In 1919, Commander Reichelderfer served as meteorological officer at Lisbon, Portugal, the European terminal for the first flight across the Atlantic made by the Navy flyers. From 1922 to 1928 he was in charge of the reorganization and development of the naval meteorological service, administering 25 stations for observation and forecasting with a personnel of more than 100 officers and men. During all of this period he worked in cooperation with the Weather Bureau and for the first three years was on duty daily in the forecast division of the Bureau.

In 1925, he established the air mass and frontal analysis method of forecasting throughout the Navy's meteorological service, and in 1926 was closely associated with organizing the Navy graduate course in meteorology at Massachusetts Institute of Technology.

Following completion in 1928 of the reorganization of the Naval meteorological service, Comdr. Reichelderfer was assigned as meteorologist for the airship Los Angeles and the Naval Air Station at Lakehurst, N. J., serving meanwhile on a number of interdepartmental boards on meteorology and aeronautics. He made extensive studies in Europe of advanced methods of observing and forecasting weather, particularly those developed at the Geophysical Institute in Bergen, Norway.

Comdr. Reichelderfer has handled the weather data for the Navy balloons in eight international balloon races. In 1936 he was Navy meteorological officer on one trip of the German airship Hindenburg. He is a member of the Institute of the Aeronautical Sciences and the American Meteorological Society. Prior to his appointment as chief of the Weather Bureau he was an executive officer on the U.S.S. Utah.

## Boeing School Equips

Oakland, Cal., Dec. 17—Boeing School of Aeronautics has acquired an aircraft engine torque stand which tests motors up to 1,000-hp., for use of its students in the engine service and overhaul, engineering, and airline technician courses. A new hydraulic universal testing machine in the materials testing laboratory has a capacity of 20,000-lbs. and makes available information on compression, tension and bending. A photo-elastic machine showing visually the effect of shape on materials and the flow and distribution of stresses under applied load has also been completed. In the radio shop a training room for operators was recently built. After students secure 2d class radio telephone operator licenses from the FCC, and practice in the new room, some are assigned to United Air Lines' radio room at Oakland for experience.

## Gill Wilson Carries Ball for 1st Comprehensive Air Program

C. I. O., War Vets, U. S. Chamber, D. A. R., Air Corps and CAA Among Diversified Groups at Round-Table to Plan Big Aviation Forum in February

For probably the first time, aviation leaders sat down Dec. 19 at the same table with representatives of such varied interests as the U. S. Chamber of Commerce, the Veterans of Foreign Wars and the American Federation of Labor, to discuss and hear plans for a comprehensive program of aviation education undertaken under the sponsorship of the National Aeronautic Planning Conference.

With more than 60 persons attending, the meeting was held at the Mayflower Hotel, Washington, with the immediate object as the Second National Aeronautic Planning Conference tentatively scheduled for Washington, D. C., on Feb. 20-22.

Leadership in the first broad program designed to tell aviation's story to the public and to obtain the active cooperation and efforts of numerous public-service organizations, was taken by Gill Robb Wilson, director of aviation for New Jersey. With the active interest and support of the Civil Aeronautics Authority and the Army Air Corps, Wilson outlined the major goals of the movement to dramatize aviation as something more than a "flying game" but as a social, economic and political force in the world today.

Plans for the meeting had their genesis in a program suggested by Arthur Dudley, chamber of commerce executive of Sacramento, Cal., who had urged the formation of a National Aeronautic Council embracing all aviation organizations. William Enyart, secretary of the National Aeronautic Association and also secretary of the skeletonized Council, had done the preliminary organizing work.

But Wilson picked up the ball and carried it much further than the original plans called for and launched what appears to be the first practical program for spreading the gospel of aviation so far undertaken—and designed to do a job passed up by the National Aeronautic Association for a good many years. It was clear that the CAA and the Army Air Corps were not a little interested in the program and officially and unofficially urging its promotion.

To aviation people who have been "selling themselves" for years by endless discussion which ended in discussions to have more discussions, the Mayflower Hotel gathering was indeed a unique sight. For there were representatives of such organizations as the International Organization of Chiefs of Police; of the United States Conference of Mayors, of the Pennsylvania Bar Association, of the Washington Board of Trade, of Kiwanis International, of the National Association of Broadcasters, of Zonta International, of the Disabled American Veterans, of the Daughters of the American Revolution and of the American Legion.

Then, too, one should not overlook the Committee for Industrial Organization, the American Federation of Labor, the Air Line Pilots Association, the U. S. Chamber of Commerce, the National Exchange Clubs, and the Veterans of Foreign Wars.

There were state aviation representatives from New Jersey, Illinois, Nevada, Utah, Tennessee, South Carolina, Florida, Kentucky and Augusta, Ga.

From the government there were present such men as Grant Mason, member of the Civil Aeronautic Authority; Col. Ira Eaker of the Army

Air Corps; a personal representative of Assistant Secretary of War Louis Johnson, and John Victory, of the National Advisory Committee for Aeronautics.

Four airlines were represented and Carlton Putnam, president of Chicago and Southern, represented Col. Edgar Gorrell of the Air Transport Association. There were also representatives of the Aero Club of Washington, the American Association of Airport Executives, the National Aeronautic Association and the National Safety Council. In addition there were the Interstate Airways Committee, the Private Fliers Association and the Air Reserve Association.

Completely absent—and notably conspicuous because of it—were any representatives of the manufacturing side of aviation. Also absent was the president of the National Aeronautic Association and, in all justice to the others, the airline representation was largely confined to Washington representatives without power to speak for their companies.

But "aviation's public" was not only present but actively interested in hearing about an aviation program. Gill Wilson capitalized on this opportunity, flanked on the one side by encouragement from the CAA and on the other by the Air Corps, both of which units need public support.

To those who had followed the preliminary plans the gathering had its amusing irony. Instead of attempting to organize for the 53d time another aviation body, Wilson devoted his attention to providing the invited organizations with a program to sell their respective groups and spoke of the coming conference in February as a forum which would hear the best talent that aviation has to offer.

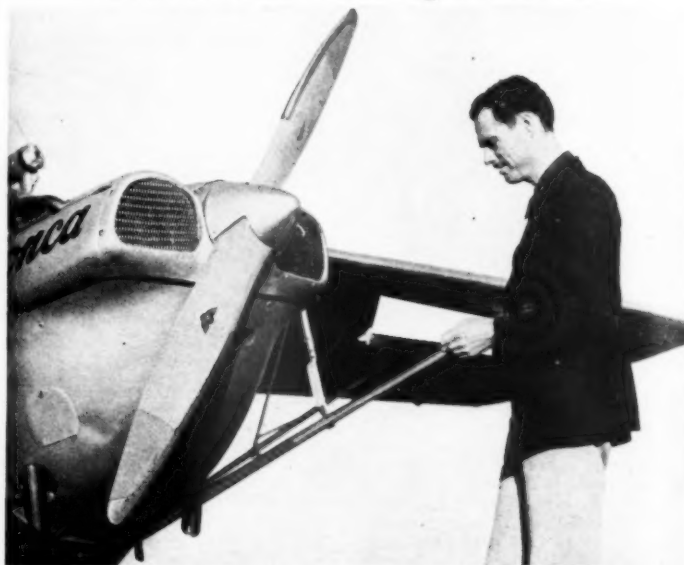
Particularly significant was the expression from the representative of the National Association of Broadcasters that radio facilities would be open to a constructive educational program for aviation.

Also significant were the remarks of Grant Mason who ended up a frank discussion of aviation growth in Europe and its consequent effect upon America's aviation market in South America by asserting that the CAA wants to see a committee or organization that represents all manufacturers in this country instead of the present disorganization by which the Aeronautical Chamber represents only some of the companies while non-member companies are dealing individually with government agencies. He said a unified organization would save the time of everyone and would lead to a protective unit for exports.

Next step in the general program is to arrange for the February conference and plans will also be made for a continuation of the conference idea with annual programs centering upon National Aviation Day.

Mayor Harold H. Burton, of Cleveland, was one of the principal speakers at the Mayflower meeting, advocating a strong federal aid program for airports. Among the many who attended were Hamilton Rice, legislative director for the Veterans of Foreign Wars; Paul V. Betters, executive director of the U. S. Conference of Mayors; John P. Frey, of the American Federation of Labor; Major Walter Williams, director of aviation for Tennessee; Al Near, presi-

## Coast to Coast Non-Stop for \$24.75



After completing on Dec. 1 the year's most significant light plane flight, a non-stop, non-refueling hop from Los Angeles Municipal Airport to Roosevelt Field, Johnny Jones poses by the nose of the stock Aerona which took him cross country in 30-hrs., 37-mins. at a cost of \$24.75 for the 2,785-mile jaunt. The 50-hp. Continental engine consumed about 123-gals. of gas.

### AIRPORT EXECS MEET

Jack Berry Calls Meeting for Jan. 15 At St. Louis

Major Jack Berry, manager of Cleveland Municipal Airport and president of the American Association of Airport Executives, has called a meeting of his association for Jan. 15 at St. Louis, one day in advance of the annual meeting of the National Aeronautic Association. Major Berry said his meeting had no connection with the NAA sessions but was being held in St. Louis at that time because of convenience.

Although Major Berry will not return from a sojourn in Florida in time for the meeting, C. V. "Bud" Burnett, manager of Detroit Municipal Airport and vice-president of the AAAE, will preside. The St. Louis sessions will be for the purpose of forming a permanent organization and election of officers for 1939. The AAAE was formed during the National Air Races at Cleveland last September.

### New CAA Vision Test

All applicants for non-military flying certificates must now take a special vision test, devised by Dr. Eldridge Adams, chief of the medical section of the CAA, which takes into account the varying ability of the human eye to read printed matter on green, white and brown paper, such as is used in official sectional aeronautical charts. The purpose of the test is to insure the ability of the pilots to read the names of towns and cities on their charts. In order that applicants will not memorize the names on the vision card, the words used are a jumble of towns, cities and other geographical locations picked at random from a map of the United States.

dent of the Air Reserve Association; Earl Mallory, of the American Municipal Association; Lewis Breuninger, of Kiwanis International; E. D. Kirby, National Association of Broadcasters, Ed Hamilton, Air Line Pilots Association; John Thomas Taylor of the American Legion; Jack Berry of Cleveland Municipal Airport and others.

### Flying Club of \$100,000 Capitalization in N. J.

Paterson, N. J., Dec. 15—Aero Country Club, Inc., has filed papers of incorporation and plans to construct hangars and a clubhouse near Mountain View. With an authorized capitalization of \$100,000, the group was organized recently with the following stockholders, some of whom are also members of the North Jersey Wright Club, which will continue to function:

Willy Beuthahn, William Ehrhardt, Jr., Jack Fasselle, John B. Garino, James La Bagnera, Earl S. Brown of Hawthorne, President Gieblitz of Little Falls, Thomas Rutledge of Little Falls, Otto Tesch of Pompton Plains, Thomas Schmidt of Clifton, Joel Gustavson, Stanley Jankowski and Milton Morris of Passaic, Robert Grass and J. Mark DeVoe, Jr. of Ridgewood, John H. Aemissegger of Bergenfield, Michael Dushick of Garfield, Julius Muehbach of Irvington.

Officers were not announced.

### Cheyenne Hangar Plans

Cheyenne, Wyo., Dec. 20—Cheyenne Flying Service will rebuild its hangar at municipal airport, which was damaged to the extent of \$25,000 in a recent wind storm. Two of the planes which were damaged by a falling wall were owned by the company, and the third was the property of C. L. Lansing, of New York City. None was insured. City council has issued a permit to build a \$42,800 hangar which will be owned by the city and leased to Inland Air Lines.

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## Private Flyer

(Continued from page 1)

Bill Rochford has had 17 years' experience in private and corporate law practice, holds a commercial pilot's certificate, and formerly held a commission in the Intelligence Section of the U. S. Navy Reserve. Recently with a lumber institute of Cleveland, for years Rochford has taken an active part in private flying programs in Minnesota and was prominent in NAA work in that state. He is highly regarded as a specialist in private flying problems, particularly from the standpoint of regulations, and representative of private flying in general.

At the same time, Glen Woodmansie, for five years in the Solicitor's office of the Department of Commerce, was appointed chief of the enforcement section under Vest. Woodmansie has handled many of the old Bureau of Air Commerce regulatory and enforcement matters.

A third development came when it was revealed that the long-awaited revision of the Civil Air Regulations will get underway with some speed at once. Appointment of Rochford was the last obstacle to a green light on complete overhauling and simplifying of regulations pertaining to private and non-scheduled flying—notably the well known chapters 20 and 60. Rochford and Grove Webster will work closely on the revisions and while no date is set for their completion, it is expected that the job—a difficult one—will be completed within a few months at most.

A fourth development came when it was made known that Webster's division may be expanded in the future to provide sufficient personnel for a comprehensive educational program to aid private flying. Placing of a private flying expert in each of the CAA regions has been discussed, it is understood, but the final form of the plan has not been completed.

Perhaps the most significant change from the standpoint of the private flyer is the change in attitude and policy by the government following the creation of the CAA. Several members of the Authority are strong advocates of private flying, namely the chairman, Edward J. Noble, and Robert H. Hinckley. This new policy can be gauged by the release issued when the private flying division was created early in the month. It said:

"The CAA emphasized the fact that Mr. Webster's role will be that of a coordinator and educator in this phase of aviation rather than that of a policeman. One of the important tasks on which he has already done much work and to which he will continue to address himself is a simplification of the CAA regulations affecting the private flyer; it is intended to reduce flying restrictions to a minimum, consistent with safety, and to reduce all air traffic regulations to language clearly understandable by the layman."

## Erco's Weick-Designed All-Metal Airplane Ready for Production

Production on the first ten private-owner airplanes to sell for about \$2,500 each will be started within the next 60 days by Engineering and Research Corp., Riverdale, Md., according to Henry Berliner, Jr., president of the company.

The \$300,000 plant housing the company's numerous activities has been completed and partially occupied. It is located a few miles over the District of Columbia Line and a short distance from College Park Airport where the first experimental ship is hanged.

Production of airplanes is only one of the company's plans. For some years Berliner has been manufacturing forming, cutting and riveting machines which have been widely sold around the world. Part of the plant will be devoted to manufacture of engines of about the 60 horsepower class and another section is devoted to propellers. Engineering and Research hold the U. S. manufacturing rights for the German Schwartz propeller and some Navy experimental work is now in progress.

As for the \$2,500 airplane, it is of metal construction except for the fabric covering of the wings. It is a refinement of the Weick W-1m designed by Fred Weick, the engineer, and built by the National Advisory Committee for

Aeronautics at Langley Field several years ago. It has a tricycle landing gear and its nearest counterpart in the air today is the Stearman-Hammond.

Berliner said no name has been chosen for the ship and he was welcoming suggestions. Lacking anything better it will probably be called Erco from the first letters of Engineering and Research Corp. Berliner believes the flying characteristics will be superior to ships of similar class. It will cruise at about 100-mph. Details are to be released shortly.

Of modernistic design featured with glass brick, the new plant has 74,000-sq. ft. of space, of which 56,000 is for manufacturing. The propeller section and offices are fully air conditioned and the main plant is air-cooled in the summer. Ninety-five employees are on the payroll at present but this number will be increased shortly. Between 600 and 800 men can be employed at top capacity. A railroad siding has been built into the plant.

Adjoining the plant is a landing field with two 3,000-foot runways which are now being graded for use in the early spring.

Associated with Berliner is Fred Weick, formerly of the NACA, and Harold Morehouse, aircraft engine designer.

## Flight Instructors Organize in Florida

Orlando, Fla., Dec. 7—The Professional Flight Instructors of Florida, with membership restricted only to limited and commercial flight instructors holding valid CAA ratings, was organized here today with thirty charter members for the purpose of promoting better public relations, and a common ground for discussion of operator problems.

Alex F. Knothe of Orlando was elected president; Otis Beard of St. Petersburg, vice-president; and William C. Lazarus of Winter Park, secretary-treasurer. The organization will be an affiliate of the Florida Aviation Association.

Immediate objectives include a standardized curriculum of flight instruction to be followed by all recognized flight instructors in Florida; opposition to immediate taxation of aviation gasoline within the state; and cooperation with the CAA. Next meeting will be at the Columbus Hotel, Miami, on Jan. 7.

O. J. Whitney, Inc., 9 Rockefeller Plaza, New York City, has published a folder entitled "Non-Scheduled Air Transportation," advertising the company's charter service. A page is devoted to each of the following subjects: choice of airplane charter, true stories of people who have used the service, and answers to pertinent questions.

## Aero Groups

Omaha, Neb.—Al D. Wolf has been elected president of the local NAA chapter. Other new officers are W. C. Cummings, vice president; V. R. Kiely, secretary, and William Duran, treasurer.

Scottsbluff, Neb.—Scottsbluff Aero Club has been organized with Budd Anderson as president; Al Carmody, vice president; Norris Rock, secretary, and Dan Ramsey, treasurer. Members are 9 local business men. They have purchased a Cub for training.

Seattle, Wash.—Chairmen of six standing committees of the local NAA have been named by Capt. Joseph F. Adams, president, as follows: Robert O. Fullwinkel, membership; Prof. J. W. Miller, legislature; A. Elliott Merrill, airports and airways; Harold Mansfield, publicity representative of Boeing Aircraft Co., in charge of publicity; D. C. Valle, Northwest Planning Council, and Dr. William M. Davidson, program.

Sioux City, Ia.—The new Sioux City Aviation Club has elected Glenard C. Field president. Other officers are Hugo Robinson, vice president; Harriette Field, secretary, and Mrs. William DeBlonk, treasurer. The club has the cooperation of municipal airport officials and the Chamber of Commerce. Weekly meetings in the C. of C. clubrooms will be held by the 25 charter members.

New Orleans, La.—Peter Miller has been elected president of the Henry P. Williams chapter of the NAA, succeeding Ben C. Davis. Other officers are Sam Gurvich, first vice president; Cliff Ganus, second vice president; Ed Keller, third vice president; Glen Riley, secretary; Gerry Schoen, treasurer; Charles Freeman, sergeant-at-arms, and Margaret Lamont, historian.

Detroit, Mich.—Maj. Lloyd Arnold has been elected president of the Michigan chapter of the Air Corps Reserve Officers Association. Capt. Harry Copland is vice president and Lieut. Harold J. Miller is secretary and treasurer.

## MORE MIAMI TROPHIES

Total of 11 to Be Awarded Winners In All-American Events

Miami, Dec. 15—Three new trophies have been added to the list of prizes of the 11th Annual All-American air maneuvers to be held here Jan. 6-8, Claude Pullen, chairman of the trophies committee, announces. This brings the total to eight, as follows:

1-Macfadden Trophy, a permanent award to the winner of the initial New York to Miami race, starting at Floyd Bennett. This 1st annual race will have a \$3,500 purse, \$2,000 of which will be donated by Mr. Macfadden.

2-K. K. Culver trophy, donated by Dart Manufacturing Co., named after the company's head, and to be awarded the winner of the 50-mile free for all women's handicap open to planes of 200- to 900-cu. in. displacement. Trophy is valued at \$1,500.

3-Firestone Trophy, sponsored by Firestone Tire & Rubber Co., to be given the winner of a race to be flown in heats, and for planes of 200-cu. in. displacement or less. The 1st and 2nd place winners in the qualifying events will compete in the final dash. Purse is \$800.

4-Glenn H. Curtiss Competition, for planes in the 850-cu. in. displacement category. Race is run in six laps around a 5-mile triangular course. A \$1,000 purse, and a \$2,500 trophy.

5-Col. E. H. R. Green Trophy, valued at \$3,000, with an \$800 purse, for planes of 550-cu. in. displacement which will race around the 30-mile course.

6-Freddy Lund Trophy, valued at \$1,500, for the winner of the aerobatics event.

7-Silva Trophy, for sportsman pilots, established last year as a good will gesture of the Argentine government by A. Silva. Second and 3rd prize winners in the 30-mile race also will receive trophies.

8-Hotel Alcazar Trophy, valued at \$100, to the winner of the 25-mile race for women piloting 200-cu. in. planes. Winner also will share in the \$200 purse.

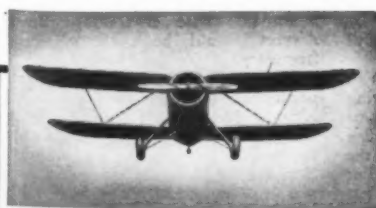
Three nationally known pilots have entered the Macfadden race: Louise Thaden, Helen McCloskey Rough, and Arlene Davis.

## Orlando Festivities

Orlando will present its annual air party and frolics of the Flying Gator Club Jan. 4-5, with several hundred planes expected, representing a consolidation of various district tours. This year's program is in honor of the private flying division of the CAA and its chief, Grove Webster. From there the flyers will hop to Miami. Orlando city government will have 24-hour watchman service for planes, proper staking facilities, and will furnish transportation to and from the airport and between the city and Orlando Country Club.

## Plan Nebraska Feeder Meet

Lincoln, Neb., Dec. 20—I. V. Packard of the state aeronautics commission has announced that a meeting will be held early in 1939 to formulate plans for air mail feeder lines in Nebraska. "The idea," he said, "is along the line of the development of our highway systems, where representatives of groups of towns assemble to promote a branch highway leading to the main trans-continental routes. The recent feeder line air mail experiment in all parts of the country has shown that such lines are practical and will soon be established."



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## CAA Ends 1st Four Months With Certificate Hearings Completed

There Are Those Who Believe Certificates Could Have Been Out Within a Month But First Phase Is Over; Rate Hearings Start

Moving with more speed after a slow period of organization, the Civil Aeronautics Authority ends its fourth month of legal existence and reaches the end of the year 1938 with all hearings concluded on applications by domestic carriers for certificates of convenience and necessity.

Although consideration of rate increases for carrying of mail has been much slower than had been anticipated, the first of these cases was scheduled for formal hearing during Christmas week with others to follow in January.

While there is one school of thought which believes the CAA could have granted the certificates to scheduled airlines provided for under the grandfather clause of the act within a month, at most, the Authority has chosen to go through a tedious system of hearings with their consequent delays. But it can be said that the hearings have progressed more smoothly and swiftly within the past month and a half and are now completed.

Much to the disappointment of the airlines, no certificates of convenience and necessity—operating franchises—were expected to be formally granted before Jan. 1, but there were ample indications that the certificates would be forthcoming with some degree of expediency during January.

With few exceptions the Authority has not sat as a body in hearings up

until the first rate case scheduled for Dec. 28. From that time on, however, the Authority is expected to devote a major share of its time to sitting in quasi-judicial capacities. It is intended that all rate cases be heard directly by the five-man board.

According to an announcement on Dec. 14, the Authority expects to attach to each certificate issued by it such "reasonable terms, conditions and limitations as the public interest may require" for the exercise of the privileges conferred by the certificate, as provided by the Act. The Authority plans to serve upon each air carrier entitled to a certificate a draft of these terms, conditions and limitations which the Authority proposes to attach to such certificates. A brief interval will be given the air carrier to note exceptions and to submit its views in writing to the Authority concerning such terms, conditions and limitations prior to the issuance of the certificate. The Authority will then announce its decision, accompanied in appropriate cases by its opinion.

If certificates are granted for all air routes in operation during the grandfather period (May 14 to Aug. 22, 1938), a total of 32,335 miles will be authorized. Every airline is entitled to a certificate unless the service rendered is found to have been "inadequate and inefficient."

### Microscopic Bids May Pan Out After All for the 'Foolish Virgins'

One question which has been bothering those airlines which bid fractional amounts for carrying the mail under Post Office contracts within the past 18 months is whether they can apply for rate increases under the Civil Aeronautics Act when the contract specified that the rate could not be changed for three years.

Although it is strictly unofficial, several CAA officials are of the belief that the airlines can obtain an increase under the new law. Basis for this belief is that with the passage of the Civil Aeronautics Act of 1938, the law under which the contracts were let went into the discard and hence the existing contracts are not binding as to rates.

Thus it may appear that TWA with its three "one mill a mile" bids may be able to obtain a "reasonable" mail pay. So also can Pennsylvania-Central Airlines expect a fair rate on its Buffalo-Washington route for which it bid an infinitesimal figure. Eastern Air Lines' zero bid for the Houston-San Antonio and Houston-Brownsville routes is also affected, as is also National Airlines' low rate on the Jacksonville-New Orleans route and Eastern's low rate on the Tampa-Memphis and Tampa-Atlanta routes.

At the time the low bids were entered some airlines went to competitive extremes in order to obtain route franchises and they were "stuck" with their low rates for three years—until passage of the Civil Aeronautics Act. Now it appears relatively certain that they won't have to wait three years for increases and the lines who shied away from microscopic figures are no longer so sure that their reluctance to join the zero parade was so wise after all.

## 1939 Should Mark New Era for Air Carriers—W. A. Patterson

Editor's Note: The following year-end statement was prepared by W. A. Patterson, president of United Air Lines, at the request of AMERICAN AVIATION, as a representative summary for the industry.

THE TURN of the year may well mark the inception of a new era in air transportation. During the last two years the major airlines of the country have suffered financial losses although in 1938 there was a material increase in passenger business over the previous year. The situation can be attributed to several factors, including the ill effect of the inequitable method of air mail payment as provided for in the air mail act of 1934, higher costs of operation due to taxes, increased living costs resulting in higher wages, and other factors. Also the slump in general business conditions throughout the country slowed down the increase in air traffic below the industry's expectations, for which provision in equipment and availability of service has been made.

The major airlines enter 1939 looking to the Civil Aeronautics Authority to establish an equitable air mail rate formula which should more adequately reimburse airlines and improve their financial situation. Even before the turn of the year the CAA had actively undertaken an examination of this problem with a view toward timely adjustments if and when they found such adjustments necessary. Actually, the Civil Aeronautics Act of 1938 appears to set the stage for an air transport era of sound economics and constructively directed progress. While the scope of the CAA is broader than air transportation, it does appear that this act can do much to stabilize the air transport industry. If and when this stabilization of air transportation materializes, it will lead to continuation of the steady improvement of service—to the expansion of service to meet every public need and its availability to the traveling public on as economical a basis as possible.

Irrespective of anticipated beneficial effects resulting from the Civil Aeronautics Act, the year 1939 looks much brighter in prospect than the year 1938. Any further improvement in industry will be reflected in increased air traffic. The two factors will help materially. The public each year becomes more ready to travel by air. The airlines have the right to be conservatively optimistic about 1939.

There are numerous problems which must be dealt with during the coming year, including equipment. It appears the introduction of four-engine airplanes in actual service will not be accomplished at least during 1939. An intensification of the program of public education is needed. One excellent move in this direction is the agreement among the airlines jointly to sponsor a \$300,000 educational advertising program in conjunction with the manufacturers. It is also important evidence of the constructive intention of the airlines to act together in their common merchandising problems.

### Farley Hits Vote Snag in Newark-North Beach Row; Mail May Remain

In the process of lining up electoral votes for the Democratic Party in 1940, Postmaster General Farley has found a snag in the North Beach-Newark Airport controversy which might well affect the party's votes from New Jersey and also the status of airlines in the metropolitan area.

Principal use of Mayor LaGuardia's *tres chere* North Beach Airport in New York City depends on air mail. If the Post Office approves a transfer of the mail terminal from Newark to North Beach, Mayor LaGuardia will have the bulk of airline schedules in his back yard. But if the mail terminal is kept at Newark, North Beach will get only non-mail schedules and whatever connecting shuttle or extension service the airlines want to provide.

Mr. Farley, being the nation's most astute political manager for many a decade, starts lining up electoral votes far in advance. He is certain of controlling New York state no matter where New York's airline terminal may be. But Newark Airport is an issue of no small size in the adjoining state of New Jersey and the city of Newark is keenly aware of the political importance involved. Mr. Farley is finding that his control of the New Jersey delegation may depend on keeping the mail terminal at Newark and there is something about the value of party delegations which is difficult to overcome by persuasion, logic or just hopeful thinking.

There are several other factors which indicate that Newark is far from being thrown into the discard and that Mayor LaGuardia may, after all, have a fine airport and some schedules but not the major terminal for the metropolis. For example, Boston-Maine Airways has applied for a route certificate from Boston to North Beach. It was the

first airline to apply for a route into the new airport. All other certificates call for terminals at Newark. Boston-Maine applied for its new route on the grounds that it would be providing a new service and not a duplicate, since American Airlines flies from Boston to Newark.

Around Washington there is some significance attached to Boston-Maine's application, since this line apparently could demand a hearing from the Civil Aeronautics Authority in the event that the CAA should approve the transfer of the base of several other airlines from Newark to North Beach. At any rate it is reported that Boston-Maine feels that it has prior rights into North Beach.

Still another factor in bar-room discussions in Washington is the future policy of the CAA in relation to the entire New York area. As traffic increases it is thought probable that the CAA's policy will be to authorize the use of a number of airports and not just one terminal. In other words, the airline terminal for New York would be in mid-town Manhattan and passengers would not have advance notice of what field they were reaching or departing from. In this event it is quite certain that Newark would be one of the major fields used and the actual value of North Beach would be somewhat lessened because even Floyd Bennett Airport would be used with some frequency.

New York and Newark newspapers, particularly the *New York Sun* and the *Newark News*, have pointed out that while the airlines have ostensibly signed up for North Beach, the leases are void if North Beach is not ready for use by Apr. 1, 1939, and there is some feeling that the field will not be completed in time.



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## Wright Aeronautical Building Test Stands for Engines of 3000 HP

Four of 14 New Cells Already Completed; Guy Vaughan Calls Company's Policy 'Significant', Cites Rapid Gain in Efficiency of Air Cooled Motors in Recent Years

Wright Aeronautical Corp. has announced preparations for quantity production of 3,000-hp. aircraft engines, twice the output of the most powerful engines now in use, according to Guy W. Vaughan, president of Curtiss-Wright Corp. Although actual production is some time ahead, construction has begun on a battery of 14 test cells in which engines up to 3,000-hp. may be mounted for the 10 hours of operation, under their own power, required by the company before delivery. Four of these cells are already in service. Mr. Vaughan emphasized that the new equipment will be used solely for engines on a production basis, and not for experimental development.

"The trend in aircraft engines is unswervingly toward single units of higher power to meet the demands created by the larger aircraft projected," Mr. Vaughan said. "Aircraft manufacturers already have designs of ships whose size would dwarf any aircraft now in operation or actually being built. While there are many other problems to be solved before these planes become a reality, one of the principal deterrents to the execution of the designs is the lack of single engines of sufficiently high output to enable the plane manufacturer to obtain the total power required without resorting to the use of a larger number of power plants than is deemed practical.

"During the past 10 years we have doubled the output of the nine-cylinder radial air-cooled engine, and by building similar engines with 14 cylinders arranged in two rows, have produced power plants three times as powerful as those of a decade ago.

"In 1929, anyone who had ventured the belief that the radial air-cooled engine could be satisfactorily produced in units of more than 600 to 650-hp. would have been regarded as an extreme optimist, to say the least. Today, we have in production the 1,500-hp. Wright Double-Row Cyclone which has been selected to power the Boeing 314 flying boat, the Curtiss-Wright CW-20 transport and the new Martin patrol boats for the U. S. Navy.

"Exactly what the future will bring in the line of higher powers, I am not now in a position to state. However, last year the Wright Company completed a \$250,000 experimental testing laboratory which will provide for the endurance proof-testing of engines of 3,000-hp., swinging flight propellers up to 20 feet in diameter. That we are preparing today for the testing of production engines of similar capacity should be significant at least of our confidence that more powerful engines will be built."

The cells simulate actual flight conditions as far as is practicable. A blower rushes air through the carburetor at 200-mph., as in a modern plane, and the air may be varied in oxygen content to reproduce upper air composition. Elaborate control rooms with complete testing and recording apparatus are placed between each two engine cells, and the inspector is able to watch each engine through glass partitions. Each control room and cell is air-conditioned and soundproofed. Operations are carried on 24 hours a day.

In place of the conventional engine mount framework of structural steel bolted to the floor, a steel tube is suspended from the ceiling by four cables

and anchored to the floor by two more. Cradled in rubber, these cables provide a flexibility in the engine mount which could not be obtained with a rigid test stand, thus again flying conditions are reproduced to a greater extent.

### C & S Promises Move to

#### Memphis if New Route OK

Memphis, Tenn., Dec. 10—Amos Culbert, vice-president of Chicago & Southern Airlines, has informed city officials that his company will move its operations base here from St. Louis if his line is granted a certificate for operations on the proposed Memphis-Houston route. In a speech before the Dawn Patrol, an organization of local sportsmen pilots, Culbert urged the expansion of private flying activities and said his company would actively aid the development of non-airline activities.

### ALMA Wins PCA Election

The National Mediation Board on Dec. 12 announced that it had certified the Air Line Mechanics' Association as "duly designated and authorized" to represent the mechanics of Pennsylvania-Central Airlines Corp. Announcement followed an election in which 46 out of 65 mechanics eligible to vote named the ALMA.

### TWA Adds Night Stops

Transcontinental & Western Air began night activities at Dayton and Fort Wayne Dec. 15.

## Use of Credit Cards Restricted Jan. 1

Use of air travel cards permitting 15% discount on one-way trips to card holders will be greatly restricted Jan. 1 according to an agreement reached by all scheduled air transport operators through the Air Transport Association.

Although the CAA has not formally ruled on the use of credit cards entitling holders to discounts, the restrictive move is being made to avoid charges that the credit plan is discriminatory against the general public. In the past many persons have been able to use credit cards although they have not been directly employed by concerns having the credit privilege and until recently credit cards were "loaned" to non-card holders for the purpose of obtaining the 15% discount.

Under the agreement now effective, only officers, directors and employees of concerns taking out a credit plan are entitled to hold a card and there will be no transfers of the privilege. If a credit plan is taken out by an individual, only the individuals or his employees or his immediate dependents are entitled to a card. Although the number of card holders will be temporarily reduced under the agreement, the restrictions apparently have met with the approval not only of the airlines but of large credit plan holders. Trade associations, for example, can have cards only for actual employees, whereas formerly they gave cards to members.

### A. Martin Logan Speaks

A. Martin Logan, executive representative and assistant to the president of American Airlines, was principal speaker at a meeting of the Federal Transportation Association, held in the Department of Commerce, Washington, on Dec. 12.

## Imperial Asks New York-London Link; Must Await Reciprocal Service by PAA

Imperial Airways, subsidized British airline, on Dec. 20 filed with the Civil Aeronautics Authority an application seeking permission to operate regularly scheduled passenger, mail and express service across the Atlantic from London to New York, either via Shannon Airport (Ireland), Newfoundland and Montreal, or via Lisbon, Azores, and Bermuda. As an alternate route, the company desires permission to fly London-New York direct, only stopping at Shannon.

The British company cannot inaugurate service, however, until Pan American Airways is ready to begin trans-Atlantic crossings. A Department of Commerce permit, dated Apr. 17, 1937, granting Imperial permission to operate service for 15 years from June 1, 1936, contains a clause reading as follows: "Privileges shall not be available until the United States airline company shall operate its reciprocal scheduled transatlantic service." It also states that there shall not be more than two round trips per week unless with the approval of the U. S. government.

"No definite statement can be made at this time with respect to the type of aircraft which will be employed," Imperial's application said, "since final decision has not yet been made." The company has four modified C class boats, to be known as the Cabot, Caribou, Connemara and Clyde, completing construction by Messrs. Short Bros., Rochester, England. These planes are high-winged, all-metal flying boats, powered by four Bristol Perseus en-

gines, and Imperial states that these "may be used." Short Bros. are also building three C class "developed boats," powered by Bristol Hercules engines, which "may be employed." The company did not indicate when it expects delivery of the planes.

When Pan Am will be ready to fly the Atlantic is not known at this time. The company is buying six of the 74-passenger four-engined Boeing Clippers, two of which have been completed but not delivered. It is believed that the first of these ships will be put on the Pacific route, where the equipment problem has been pressing since the disappearance of the Hawaiian Clipper.

### Boeings for Pacific

The first two Boeing 314 Clippers now in the final stages of testing at Seattle will be placed on Pan American Airways' trans-Pacific service, it is understood. Four more are under construction. It is expected that the Clippers will be placed in service early in the year. Three Martin Clippers were placed in service originally but since the loss of one of these Pan American has been unable to maintain its weekly schedule. The 42-ton Boeing ships will have considerable more payload than their 26-ton Martin sister ships. The Martin Clippers, incidentally, have maintained a remarkable performance standard considering their steady use on what is one of the toughest operations in the world.

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## Air Mail Brings P. O. First Profit; \$736,953 for Fiscal Year 1938

Postmaster General's Annual Report Shows \$15,301,210 in Revenue  
Against Payments to Contractors of \$14,564,256

Domestic air mail service during the fiscal year 1938, ended June 30, 1938, showed a profit of \$736,953.46, with revenues to the Post Office Department climbing to \$15,301,210.50, while payments to contractors were approximately \$14,564,256.54, according to the annual report of Postmaster General James A. Farley, released Dec. 28. This is the first time in history that the Post Office has admitted making a profit from the air mail service.

The \$14,564,256.54 payment figure is estimated, but is known to be substantially correct because it includes all rate increases proposed by the Interstate Commerce Commission. Air Mail Week income of \$910,932.36 is contained in the final revenue total.

During the 1937 fiscal year, air mail sustained a loss of \$498,997.53 (revenue of \$12,439,579.24 against payments of \$12,938,576.77), according to official P. O. records, while in 1936, the loss was \$2,402,120.85.

There were 46,112,904 miles flown by planes carrying air mail on a mileage-pay basis in the 1938 fiscal year, exceeding by more than 15% the record of any previous year. At the end of the year, route miles totaled 33,655. Air mail pound-miles performed reached 14,137,360,791, compared with 12,732,530,874 in 1937 and 9,771,841,815 in 1936.

The time is coming when air mail at 6¢ per ounce will reach the "saturation" point, and no further expansion can be expected, according to Charles P. Graddick, superintendent of air mail service. It will then be necessary for the Post Office Department to institute a lower rate. Whether such action is contemplated for any time in the near future was not indicated.

### TORONTO AID NAMED

Trans-Canada Chooses H. D. Harling  
As Full Time Traffic Representative

Montreal, Dec. 13—Herbert D. Harling has been appointed traffic representative for



Harling

Trans-Canada Air Lines at Toronto, it was announced today by George G. Wakeman, general traffic manager. Born in London, England, in 1900, Harling attended British schools and was with the R.A.F. during the war. He is widely known as a traffic representative both in rail and air circles. During the past few years he has specialized in air transportation, and has frequently visited air offices and ports in the U. S. and Bermuda. He relinquishes his position in charge of the travel bureau at the city ticket office of the Canadian National Railways at Toronto. He is a member of the Comrades of the Royal Air Forces' Association, and of the New York State Aviation Association.

### Kirsch Returns

Stanley W. Kirsch, representative for Pratt & Whitney Division of United Aircraft Corp., has returned from South Africa where he spent eleven months as technical advisor for South African Airways.

### Douglas Employee Convicted

Los Angeles, Dec. 23—Karl Allen Drummond, former inspector at the Northrop division of Douglas Aircraft Corp., was convicted yesterday of trying to sell to Japan secret specifications of BT-1 Navy bombers. Drummond said he took the plans from the company's files merely to show how "wide open" the United States is in guarding its secrets, and added that he had no intention of selling the documents. A Japanese lawyer offered \$10 and the Japanese Consul allegedly thought the plans worth \$2,000. Drummond's brother, who worked with him at Northrop, testified against him.

### Asks Connecticut Action

Hartford, Conn., Dec. 14—I. W. Baldwin, of Bethany, flight commander of the Aviation Club of Connecticut, in an open letter to citizens of the state, today urged action on a 5-point program of air development under the general heads of manufacturing, airport improvement, pilot instruction, private flying and civilian education. The state has not one airport suitable for large transports, he said.

### CAA PROMOTIONS

Howard Rough to Head Authority's  
7 Regional Offices; Other  
Shifts Announced

The Civil Aeronautics Authority on Dec. 22 announced that Howard F. Rough, acting director of the bureau of airways and development, has been named director of the CAA's seven regional offices, covering the entire United States. Charles I. Stanton, chief of the airways engineering division, has been promoted to Rough's former position, and Thomas B. Bourne, Stanton's assistant, is now head of airways engineering.

B. M. Jacobs, who has been acting head of the bureau of safety regulation, has been appointed to that position permanently, and Richard Boutelle has been moved up from head of the certificate and inspection division to be assistant director of the bureau of safety regulation. J. B. Jaynes, chief of the domestic air carrier inspection service, has been promoted to Boutelle's former position.

E. L. Yuravich, head of foreign air carrier inspection, has been placed in charge of a section in which inspection of both domestic and foreign air carriers has been consolidated.

Norman B. Haley and Samuel E. Gates, acting heads of the bureau of economic regulation and the international division of that bureau, respectively, have been permanently appointed.

### Label Hobby

Collecting airline baggage stickers is becoming such a hobby that a baggage sticker exchange has opened in New York City and is offering packages of the labels in the same manner that stamps are exchanged and sold. To date the exchange has offered "Airline Package No. 1" which contains 15 labels, 9 domestic and 6 foreign, and retailing for 25 cents. Some out-of-date issues are bringing as high as \$10 and \$20. No. 2 package is now in the making.

With 17 years of training experience, RYAN is America's oldest government approved or certificated school. Using the most modern equipment of any U. S. school RYAN features S-T metal trainers exclusively. All of these planes are less than 2 years old. Complete information gladly supplied on courses in

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**RYAN**

RYAN SCHOOL OF AERONAUTICS, SAN DIEGO, CALIF.

## MARIANNO LIFT RAMP IN OPERATION AT PORT NEWARK, N. J.



### THE IMPROVED SEAPLANE RAMP

(1) Can be attached to boat, bulkhead, dock, barge or any other suitable water frontage. (2) Submerged on boat or pier at a 7 degree slope. (3) When lowered tip of apron or ramp is always fixed at about five feet below water line at either low or high tide. (4) Construction keeps sea weed, slime, ice formation etc. from affecting the ramp. (5) Lifts twelve feet to horizontal position in only 30 seconds.

Aviation authorities—governmental, commercial and private—who know seaplane ramps, both technically and practically, say it is "the finest ramp, and the cheapest to own and operate, we have ever seen."

## SAFETY, ECONOMY, COMFORT SIMPLICITY IN DETAIL

(1) Makes this ramp safe, no intricate mechanics to become involved, a seven year old boy can operate. (2) Counterweighted and balanced so that only 7 H. P. is needed to operate. (3) Can be economically designed for any large base or seaplane purpose. (4) Allows complete comfort for the passengers boarding and leaving, insures savings in first cost, in operation and maintenance as compared with all other present-day ramps.

**MARIANNO SEAPLANE RAMP COMPANY**  
TIMES BLDG. ROOM 1801 NEW YORK, N. Y.

Newark, N. J., phone: Market 2-0937



## American Airlines Hearing Continued

Hearing was held Dec. 20-21 before CAA Examiner A. G. Nye on American Airlines' application for certificates of convenience and necessity on the following routes: Dallas-Los Angeles, New York-Chicago, Boston-New York, Boston-Cleveland, Cleveland-Nashville, New York-Fort Worth, Albany-New York, Washington-Chicago, Chicago-Fort Worth, and New York-Lakehurst. The proceeding will be continued on Jan. 6 at which time representatives of Springfield and Peoria, Ill., will appear.

Eastern Air Lines, although not a formal party to the proceeding, objected to the applicant's New York-Lakehurst request, on the grounds that the route had not been operated during the "grandfather" period. C. R. Smith, president of American, explained that the service was rendered in connection with the trans-Atlantic crossings of the airship Hindenburg. It was not a local service, he stated, adding that the majority of passengers and all the mail carried to and from Lakehurst were derived from the airship. American operated 92 flights between the two points in 1936, with a load factor of 64.49%, he said. Had the German company operated during the "grandfather" period, American would also have flown, and plans to continue the service when trans-Atlantic airship flights are resumed. Mail is carried at 3c a pound under arrangement with the German company, Smith said.

Oscar Monrad, representing New Haven, Conn., asked that AA's certificate be denied unless New Haven is furnished with adequate service. A stop at that point was discontinued July 31, 1937, pending airport improvement. Monrad stated that the city has not been informed what improvements are necessary for the resumption of the stop, but H. L. Smith, AA operations manager, said that definite recommendations had been made and that the field was not adequate in its present condition.

Earl R. Southree and Joseph Kienzie, appearing for Elmira, N. Y., and Chemung County, stated that they want Elmira included in AA's certificate and wish service as soon as an adequate airport is available. AA discontinued Elmira service on Aug. 31, 1937, pending airport improvements.

Sweetwater, Tex., is anxious to be included as a stop on AA's route, according to George Barber, who appeared for that city. An adequate airport is available, and the city is willing to undergo a six months' trial period to prove that it can produce sufficient revenue to justify the stop.

N. Bert Ison, CAA senior air carrier inspector, testified that the applicant's service and equipment on all routes was adequate and efficient during the "grandfather" period.

### N. Y. Express Shipments Up

Air express shipments in and out of New York during November totaled 32,340, up 20.8% over a year ago, said Railway Express Agency. Incoming shipments were 12,331 (up 24.7%), and outgoing shipments were 20,009 (up 18.6%).

## DOUGLAS APPEALS RULING

Asks Federal Court to Set Aside NLRB Action of Dec. 7

San Francisco, Dec. 21—The Douglas Aircraft Co. of Santa Monica, Calif., petitioned the U. S. Circuit Court of Appeals here today to set aside the ruling of the National Labor Relations Board ordering the company, among other things, to re-instate with back pay sit-down strikers convicted in Los Angeles Courts of conspiracy to seize and hold company's property. The petition was filed by Harry W. Elliott, attorney and director of the Douglas Company.

The board's ruling was handed down in Washington on Dec. 7, the case having been before the board for 15 months. In his appeal Mr. Elliott charged that the NLRB disregarded the evidence before it, that its "findings of fact and conclusion of law" are erroneous, invalid and contrary to law; that they are based "upon hearsay, conclusions and opinions" and that "the said findings are arbitrary, capricious and contrary to evidence."

In a vigorous statement made public today Donald W. Douglas, president, said the company was not attacking collective bargaining or the right of labor to organize and improve itself. "We believe in these principles, and at all times have been ready to incorporate them into our labor relations. What we are opposing, and will continue to oppose with every legal resource at our command, is intimidation and planned lawlessness, collective or individual, as well as arbitrary and destructive orders used by the Board upholding violations of law."

## NEW PILOT GROUP

John Scherer Announces the Airplane Pilots League

New York City, Dec. 21—John L. Scherer, aviation editor of *Mechanix Illustrated*, and Stanley Gerstin, associate editor, have announced formation of the Airplane Pilots League, membership in which is limited to those holding a student pilot's permit or higher pilot's certificate. Organized on a non-profit basis, the APL has no connection with any magazine. Membership cost is \$1.

Object of the APL, according to Mr. Scherer, is to unite student and certificated pilots into one strong organization "so that they can effectively represent the flyers in dealing with the CAA, combat restrictive aviation legislation when necessary and serve as a sort of unofficial go-between for the CAA and pilots."

The largest flying organization today, he said, claims less than 2,500 members "which certainly can't be said to represent the pilots of the country." The APL will favor creation of a Civilian Air Reserve and also a "little" National Air Races with participation limited solely to non-professional pilots. A Washington representative is to be appointed shortly. Offices will be at 516 Fifth Avenue, N. Y. C., until Feb. 1.

## New Manual Published

A manual on aircraft propeller airworthiness, supplementary to the Civil Air Regulations, part 14, has been published by the CAA.

# FACTS

about the

## AERONAUTICAL CHAMBER OF COMMERCE OF AMERICA, INC.

The Aeronautical Chamber of Commerce of America, Inc., is the trade association of the aviation manufacturing industry in the United States. Its membership at present comprises 70 per cent of the dollar volume of the 1938 production and 70 per cent of the employees in the industry as of September, 1938. The company members of the Chamber include 10 out of 16 of the manufacturers of military aircraft, 14 of the 19 producing civil aircraft companies, and 9 out of 12 of the engine manufacturers. The Chamber membership also includes practically all the important instrument and accessories manufacturers.

Among the member manufacturers of military aircraft are Bell, Boeing, Brewster, Curtiss Aeroplane, Kellett Autogiro, Lockheed, Stearman, Sikorsky, Chance Vought and Vultee.

Among the Chamber members who manufacture civil aircraft, besides the above who manufacture both military and civil aircraft, are Aeronca, Beech, Bellanca, Curtiss-Wright (St. Louis Division), Fairchild, Luscombe, Monocoupe, Piper, Porterfield, Taylor-Young, Stinson and Waco.

Among the Chamber's member manufacturers of aircraft engines are Allison, Continental, Jacobs, Lycoming, Pratt & Whitney, Menasco and Wright Aeronautical.

Among the Chamber's members who manufacture propellers, instruments, accessories and materials are Aero Supply, Aircraft Radio, Aluminum Company of America, B. G. Corp., Bendix Products, Breeze, Champion, Curtiss Propeller, Dow Chemical, Eclipse, Eaton Manufacturing, Edo, General Electric, Goodrich, Hamilton Standard, Walter Kidde, Kollman, Norma-Hoffmann, Pioneer Instrument, R. C. A. Manufacturing, John Roebbling Sons, Scintilla, Sperry, Thompson Products and Western Electric.

The Chamber was incorporated under the laws of the State of New York in 1919, and was formally organized with 100 charter members on December 31, 1921.

For 17 years the Chamber has been the medium for group effort in a continuous cooperative movement for the development of American aeronautics.

For 17 years the Chamber has taken an active part in every constructive movement seeking the advancement of flying. In nearly every instance the Chamber has been the leader of such movements.

The Aeronautical Chamber of Commerce of America, as the trade association of the aviation industry of the United States, welcomes applications for membership from all manufacturers of aeronautical equipment.

## THE AERONAUTICAL CHAMBER OF COMMERCE OF AMERICA, INC.

729 Fifteenth Street, N. W.  
Washington, D. C.

30 Rockefeller Plaza  
New York

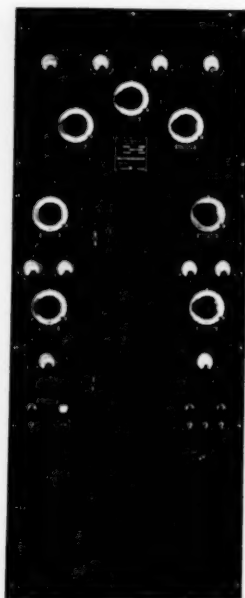
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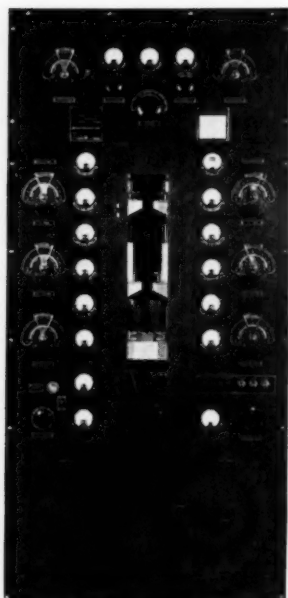
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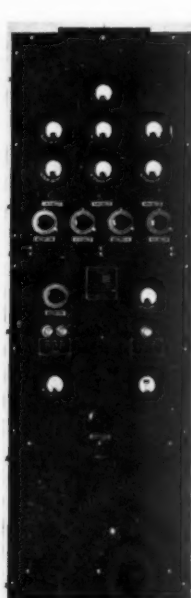
# NO PLANE PROPERLY EQUIPPED CAN BE LOST IN PENNSYLVANIA



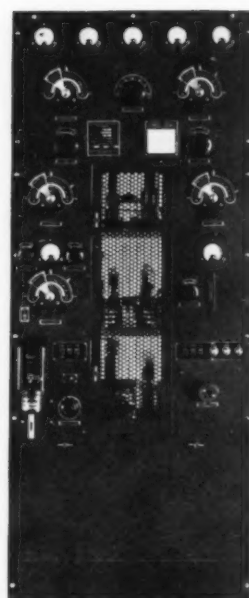
Simultaneous Runway  
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Radio Range Transmitter



Elliptic Marker  
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Short Range Loop  
Transmitter

*Consult With Us on Your Problems—We Will be  
Glad to Cooperate*

Pennsylvania Airways are equipped with Simultaneous Radio Ranges. All beams are equipped with Dual Safety Markers. Its important airports have Simultaneous Runway Localizers insuring safe entry to the airport with positive contact every second of flight

Radio Receptor equipment is safeguarding the highways of the air not only in Pennsylvania but throughout the U. S. A., Canada, and other places.

## RADIO RECEPTOR CO., Inc.

251 WEST 19th STREET

NEW YORK, NEW YORK

CABLE ADDRESS: RECEPTRAD, NEW YORK



## Pennsylvania Opens Nation's First State Radio Navigation System

New \$225,000 Program Includes Simultaneous Radio Range Beacons, Localizers, and Markers for Area Once Most Dangerous in U. S.

Completion of the only airways radio development program ever undertaken by any state in the country has been announced by the division of aeronautics of the Pennsylvania Department of Revenue exactly a year after contracts were let, in November, 1937. Total cost is reported to be approximately \$225,000, of which about \$130,000 was appropriated by the state for equipment and material, \$35,000 for sites, and the remainder was furnished by the Works Progress Administration as labor.

The radio system encompasses two simultaneous radio range beacons, three low powered combined airport control and localizer beacons, and 15 elliptical ultra high frequency markers, all of newest design and incorporating several refinements which were pioneered by Radio Receptor Co., Inc. Thus the state which five years ago was known as the "pilot's graveyard," now offers the airlines of four transport companies, and private and commercial flyers, safety aids unsurpassed by any others in this country or abroad.

"Pennsylvania's mountain chains, rugged terrain and variable weather made it the most hazardous flying country in North America," said J. Griffith Boardman, secretary of revenue, under whose direction the division of aeronautics functions. "The commonwealth, several municipalities and a few pioneer individuals undertook to provide facilities in 1927. But so rapidly did aviation develop that many of these facilities soon were outgrown. Some were abandoned because of the greatly increased cost of maintenance. City after city was dropped from airline schedules. Air mail service was discontinued in all but a few communities. Although more air traffic passed over its surface than over any other state in the Union, Pennsylvania was fast disappearing from the airways schedules."

In the fall and winter of 1936-37, spurred by accidents near Pittsburgh, Gov. George Earle initiated an ambitious airport and airways program, with cooperation of the state, the old Federal Bureau of Air Commerce, the Works Progress Administration, and more than 20 municipalities.

### \$130,000 Appropriation

For purchase and erection of radio navigation aids alone the state made available an appropriation of \$130,000. Representatives of the state's division of purchases and supplies came to Washington to confer with the BAC on type of equipment. Robert LeRoy, technical adviser of the division of aeronautics, explained to government officials that all designs for the new equipment with which the Bureau of Air Commerce expected to equip its airways were only on paper. There was no actual operation experience with the equipment. The Commonwealth had studied Radio Receptor stations at Gordonsville, Va., and Knoxville, Tenn., which had been installed for more than a year and which had a successful operation record. Certain troubles were feared using the new specifications of the Bureau of Air Commerce. The Commonwealth, therefore, preferring to base specifications on assured results, decided to proceed with the company's own plans for construction and installation, departing in certain respects from the

equipment which had been designed with some cooperation by the Bureau. The BAC warned the group that it would take over and maintain no equipment which did not come up to its prescribed standards.

Bids were tendered and Radio Receptor was the successful bidder for the entire project. Contracts were awarded in November, 1937, and last month the system was completed. It was the first time that any company ever designed, built and placed in operation ready for use any complete system of airways, thus insuring against divided responsibility and loss of efficiency.

Sites, labor and buildings were furnished by the state. Labor costs were sustained by the WPA. Technical supervision was by six engineers of the manufacturer. Light, power and telephone companies laid extensions without cost, charging only for transformers. About \$5 to \$10 a month is billed for each connection of a remote control and a range station.

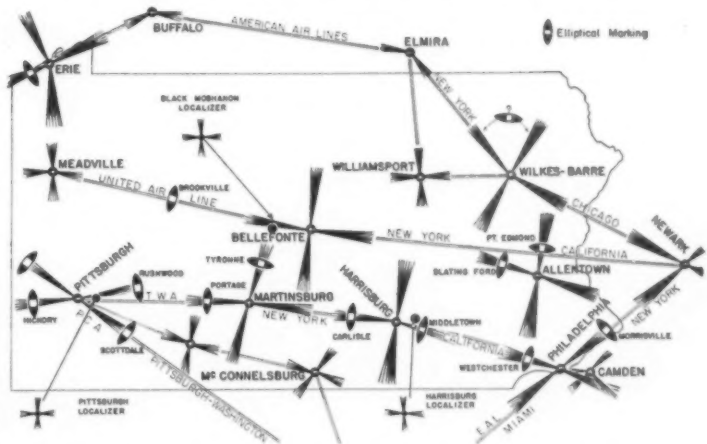
### \$38,000 For Each Beacon

Each of the two simultaneous radio range beacons (located at Martinsburg and Wilkes-Barre) cost about \$38,000, including in each case \$5,000 for labor and \$5,000 for materials. Specifications for both were written around the Knoxville and Gordonsville Broadcasters. These differed from other manufacturers' simultaneous radio range beacons in a number of technical aspects, but especially in that they operated without fans, thus precluding possibility of fan breakdown and overheating and any effect on the signal by resulting short circuits. A second point of departure was in construction of new type copper tubing transmission lines to the towers, which were laid below the frost line where the annual temperature range never varied more than five degrees. Previously, common practice had been to utilize overground lines subjected to a yearly temperature range of 115 degrees or more. The Radio Receptor units have practically eliminated key clicks, another advantage over BAC equipment. Power may be controlled over a range of 400 watts to 0, whereas BAC transmitters were limited to a 400-to-250 watt variation. Greater accessibility for tube changing and repairs and a higher percentage of time on the air is claimed for the system. The Civil Aeronautics Authority has already approved the transmitters and has taken over the Martinsburg simultaneous radio range station and the Williamsport airport control and localizer beacon. The government eventually will take over the entire system except the Harrisburg or Pittsburgh runway localizers.

Each of the three low powered combined airport control and localizer beacons (SML) represents an average cost of \$14,000, of which \$2,000 each was furnished by the WPA and another \$2,000 each was spent for materials. The stations are located at Williamsport, Harrisburg, and Pittsburgh. Each enables every pilot within the 15-mile airport zone to receive verbal landing directions without interruption of the four directional beams. Constant contact is possible by the airport operator with all listening pilots.

"It was the first time that this type of unit has been employed," state officials said. "We agreed to back Radio Receptor Co. after its engineers and

## Pennsylvania Radio Aids in Operation



Map showing various units in the ultra-modern radio navigation system built by the division of aeronautics of the Pennsylvania Department of Revenue. Stations outside state boundaries were built by the U. S. government.

those of the old Bureau had said extended experiments indicated such a transmitter was not only feasible but of great importance. Specifications then were drawn up incorporating a simultaneous localizer, not the least of its advantages being the saving of a separate antenna and transmission line at the airport."

Each of the 15 ultra high frequency markers (elliptical) cost about \$4,800 of which \$1,000 was spent on labor and \$1,500 for materials. The transmitter projects a pattern vertically so that at 3,000-5,000-ft. there is a field in the shape of an ellipse about 15 miles long and three miles, maximum width. Crossing of such a beam is indicated both visually and aurally. The 75-mc. frequency is used and output is 100 watts. Each unit has a monitoring circuit which starts the standby transmitter if the output drops to 70% of normal operation.

### New Jane's Calls U. S. Progress 'Reasonable'

A news release on the new edition of Jane's *All the World's Aircraft* appeared in newspapers in December under a London dateline. According to the press, the compendium, edited by C. G. Grey, editor of *The Aeroplane*, British weekly, noted:

1. A trend toward building larger and speedier airliners to carry troops in war and civilian passengers in peace. It takes men, not planes, to win a war. Mr. Grey was quoted.

2. In a country-by-country evaluation of production and development, French progress was disparaged, Germany gained in the past year to a marked degree, Italy progressed slightly, and Great Britain enjoyed "a comfortable middle course." Russia apparently has brought out no new prototypes since the end of 1937. U. S. progress was said to be "quite reasonable—nothing wonderful."

3. A prediction that when designs now secret were made public Great Britain would cause the world "furiously to think."

The 2-place Bellanca 28-90 was ranked as the fastest U. S. bombing plane.

Maximum speeds are reported as follows: The 3-engine Italian Savoia, with 1,000-hp. Piaggio, 295-mph.; Messerschmitt, of Germany, 310-mph.; Germany's bi-motored Dornier bombers, 292-mph.; a military version of the 250-mph. Heinkel bi-motor commercial ship; Britain's new Fairey, 283-mph.; Britain's single-seat Hawker Hurricane, 335-mph. Details of England's newest speedster, Supermarine Spitfire, are lacking.

Italy has developed an experimental Colibri safety ship powered by an 18-hp. engine.

### Arrested for Trespassing

Birmingham, Ala., Dec. 4—Glenn L. Messer, who operated a flying school at municipal airport until he was ordered off the field by city officials for non-payment of hangar rent, today was arrested for trespassing. Steadham Acker, airport manager, ordered police action after Messer landed his plane in violation of a recent city ruling forbidding his use of the airport. Messer offered a month's hangar rent in advance for storage of his ship, saying he had a right to the use of the field as "a private citizen and a taxpayer."

## WHAT THE PUBLIC WANTS



The map of human wants and desires is the guide to progress in air transportation. To enjoy the wider horizons and the fuller life which fast, comfortable air transportation makes possible—that is what the public wants. What the industry has done to fulfill this want has made interesting history. But it becomes more glorious history still as chapter follows chapter in the daily records of the industry's expansion and improvement.

## AMERICAN AIRLINES Inc.

The American Standard of Service

## STATE AERO CODE ACTION DEFERRED

Liability Measures Opposed by Aviation Groups Put Off at Request of CAA

Action on uniform state aviation laws for admitted liability and compulsory insurance, has been deferred, according to an agreement reached between members of a Bar Association committee headed by Gen. William A. Schnader, and a group of air transport attorneys and members of the Civil Aeronautics Authority.

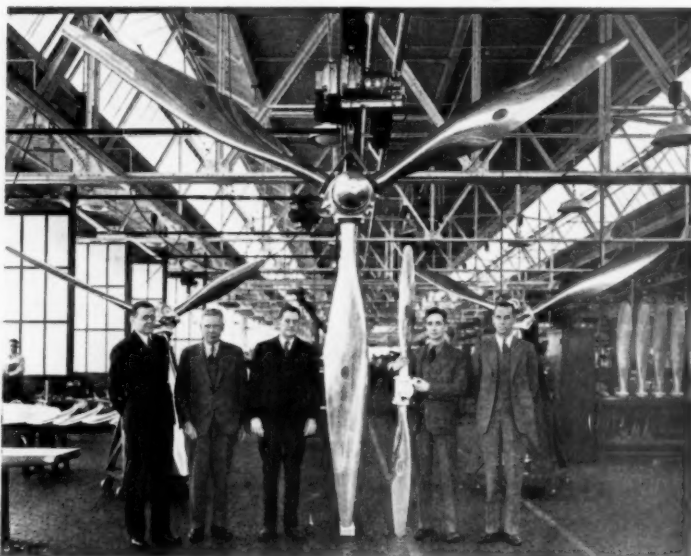
The uniform laws have been generally opposed in their present form by almost every aviation agency, including the Air Transport Association, the Private Fliers Association and the National Association of State Aviation Officials. The Bar Association's committee on uniform state legislation has worked on the proposals for several years and the entire program was ready to go to the states for action.

The decision to defer action for the present came at a meeting held in Philadelphia on Dec. 10. Principal reason was a request by the CAA that it has not had sufficient time to study the proposals and was considering a basic federal law to cover the same subjects. The CAA recently adopted a resolution which in effect promised action later on the aeronautical code.

The postponement involves the uniform aviation liability act, the uniform law of airflight and the uniform air jurisdiction act.

Present at the Philadelphia meeting were Oswald Ryan, member of the CAA; Sam Gates, director of the international section of the CAA; Hamilton Hale, attorney for American Airlines and chairman of a special Air Trans-Lines; J. H. Smith, assistant to vice-president of Chicago and Southern Air Lines; J. H. Smith, assistant to Vice-President J. C. Cooper, Jr., of Pan American Airways; Howard Westwood, counsel for the ATA; George Orr, of U. S. Aviation Underwriters; and the following members of the law committee: General Schnader, Arnold W. Knauth, publisher of U. S. Aviation Reports; George F. Bogert, professor of law of the University of Chicago, and William Mason McChesney, attorney of Philadelphia.

## World's Largest Metal Propeller



Executives of Hamilton Standard Propellers Division of United Aircraft Corp. are shown after inspecting a 17-ft. Hydromatic product, described as the largest metal propeller ever built. It is designed for use on planes that are still on the drafting board. The 3-bladed props in the background are the 11½-ft. air-screws used as standard equipment on the Douglas DC-3. The largest props previously built by Hamilton Standard were 14-footers for the Boeing Clipper and the Douglas DC-4. The officials (l. to r.) are: Arvid Nelson, factory manager; Frank W. Caldwell, engineering manager; Raycroft Walsh, general manager; Erle Martin, chief engineer, and Sidney A. Stewart, assistant general manager.

## Mid-Continent to Get First Vega Airplane

Thomas F. Ryan III, executive vice-president of Mid-Continent Airlines, said in Washington Dec. 16 that his company has contracted to purchase the first Vega airplane produced by the Vega Airplane Co., subsidiary of Lockheed Aircraft Corp. at Burbank, Cal. The 6-passenger plane, designed for feeder airline operations, will be ready for testing shortly.

Mr. Ryan said his company would put the first ship on the Huron-Bismarck route in order to study its possibilities for feeder lines.

## Files Earhart Will

Los Angeles, Dec. 9—Apparently abandoning hope that Amelia Earhart Putnam escaped when her plane was lost in the Pacific Ocean in July, 1937, George Palmer Putnam, her husband, yesterday filed her will for probate. The estate, valued at more than \$10,000, consists of royalties, real property, bonds and accounts receivable. Putnam receives the personal effects, according to the will, which was dated Apr. 5, 1932, and the remainder of the estate is put in trust for the benefit of Mrs. Amy Earhart, Mrs. Putnam's mother. Upon Mrs. Earhart's death, the trust is dissolved and the property goes to Mr. Putnam.

## SAE WILL DISCUSS AIRCRAFT, ENGINES

Annual Meeting In Detroit Jan. 9-13 To Observe National Defense Day

Aircraft, engines and national defense will be among the subjects discussed at the annual meeting of the Society of Automotive Engineers, to be held Jan. 9-13 at the Book-Cadillac Hotel, Detroit. National Defense Day will be observed on Jan. 11 and speakers for the occasion will include Brigadier General Henry H. Arnold, Chief of the Air Corps, and Captain John Towers, assistant chief of the Navy's Bureau of Aeronautics.

The tentative program released by the SAE includes the following papers:

Jan. 9

"BMEP Parameter for Cruising Power Control," by R. E. Johnson and W. G. Lundquist, Wright Aeronautical Corp.

"A Non-Icing, Fully Maneuverable Aircraft Carburetor," by M. J. Kittler, Holley Carburetor Co.

"High Lift Devices," by Otto C. Koppen, Massachusetts Institute of Technology.

"A Summary of N.A.C.A. Investigations of High-Lift Devices," by Carl J. Wenzinger, National Advisory Committee for Aeronautics.

"Sub-Stratosphere Flying," by D. W. Tomlinson, Transcontinental & Western Air.

Jan. 10

"Dynamic Suspension, a Method of Aircraft Engine Mounting," by K. A. Browne, Wright Aeronautical Corp.

"Aircraft Engine Valve Mechanisms," by V. C. Young, Wilcox-Rich Div., Eaton Mfg. Co.

"Composite Wood and Plastic Propeller Blades," by F. E. Weick, Engineering & Research Corp.

"Manly, the Engineer," by C. B. Veal, Society of Automotive Engineers.

Jan. 11

"Trends in Aircraft and Engine Performance," by Brigadier General Henry H. Arnold, chief of Army Air Corps.

"Mutual Problems of Military and Civil Aviation in the Field of Air Transportation," by Capt. John Towers, assistant chief, Bureau of Aeronautics, Navy Department.

"Industrial Mobilization for National Defense," by Brigadier General C. T. Harris, Jr., assistant to the Chief of Ordnance.

Papers on fuels, lubricants and diesel engines, not dealing primarily with aviation, will be presented on Jan. 12 and 13.

## Aviation Leaders in the News



Above: Mac Short (left), president of Vega Airplane Co., and Carl B. Squier vice-president in charge of sales for Lockheed Aircraft Corp., who was recently made a director of Vega.

Center: T. E. Johnson, aeronautical engineer and senior aircraft inspector of the Civil Aviation Board of Australia, shown as he boarded a TWA Skysleeper at Chicago. He has been in the U. S. for nearly a year visiting aircraft plants and airline bases.



Above: Glenn L. Martin, president of the Glenn L. Martin Company of Baltimore, shown at left, as he received the medallion of Civic Award at the luncheon of the Advertising Club of Baltimore from William R. Schluderberg, awards committee chairman. Mr. Martin was selected as the Baltimore business man whose achievements in 1937 contributed most greatly to the progress and reputation of the city. The award was made Nov. 30.



## UNITED'S \$15,000 CLINIC IN SERVICE

Flyers and Other Personnel Undergo Periodic Examinations; Surveys And Research Initiated

United Air Lines has released details of its medical department which has been operating for the past few months in its new operations building at Chicago Municipal Airport. Rated as the most extensive medical department yet established by any airline, the miniature hospital is in charge of Col. Arnold D. Tuttle, former head of the only aviation school of medicine in the world at Randolph Field, Texas.

With \$15,000 worth of equipment, the clinic was established to keep the company's flying personnel in peak condition and in addition to provide facilities for giving physical examinations for all employees of the company. Col. Tuttle has three assistants at Chicago and nine other physicians over the company's system conducting periodic examinations.

"Our medical department has a lot of things on its mind," Col. Tuttle said. "We see to it that highest standards of sanitation are maintained in handling of foods prepared by our commissaries and served aloft. We make sure that the water supply used at all points is of the best. We conduct sanitary surveys of every department of the line. We are responsible for the proper heating, lighting and ventilation of aircraft as well as buildings used by passengers and employees.

"We are working with research engineers in a study of the use of oxygen for pilots and the future use of it for passengers when flying is done at higher levels.

"We practice preventive medicine for the entire company, conduct entrance examinations for all new employees, and every six months examine thoroughly all flying personnel—often, of course, when required in special cases.

"Last but not least there is the problem of increasing passenger comfort—a whole science in itself, which we constantly endeavor to meet."

For examination of pilots there are 23 distinct steps and 63 separate tests made for the eyes alone. After going through the Ishihara color tests for color blindness, the pilot enters a dark room for tests with a combination refractor and eye muscle tester. The United clinic has a full line of equipment for eye testing, ranging from a telebinocular apparatus and roscope to the Visual Acuity meter, the ophthalmoscope and the Retinoscope. Hearing tests are conducted in a special soundproof room. An X-Ray room is completely equipped with the latest apparatus.

The entire Chicago clinic occupies twelve rooms.

### 3c Air Mail?

The aviation industry should not be surprised to hear official talk in Washington before so very long about a half-ounce air mail letter for three cents postage. Various studies are under way and it is possible that a three cent rate will be put into effect. Light-weight envelopes or so-called "lettergrams" could be used to advantage and come within the half-ounce limit. All mail less than an ounce is now carried for six cents.



## United's Medical Laboratory

Left: Col. A. D. Tuttle uses the binocular ophthalmoscope to examine the eyes of 1st Officer R. S. Kinkel who flies between Chicago and Cheyenne.

Below: The medical director examines a pilot with a combination refractor used for many tests of the eyes.

Below left: Miss Catherine O'Connor, medical and X-ray technician, making a blood cell count at the UAL medical department.

## Col. Sumpter Smith Heads Wash. Airport Engineering Group

The Civil Aeronautics Authority on Dec. 15 announced the creation of an engineering commission for the purpose of coordinating work of the various government agencies engaged in the construction of the Washington National Airport at Gravelly Point, and also stated that the site will be ready for flying late in 1939.

Col. W. Sumpter Smith, chairman of the Air Safety Board, and representing the CAA as the sponsoring agency, was elected chairman of the commission. Other members are Col. R. S. Thomas, district engineer, U. S. Army; Col. F. C. Harrington, assistant Administrator and chief engineer of the WPA; Herman P. Hevenor, principal engineer of the PWA; and W. E. Reynolds, assistant director of procurement. H. E. Houk was appointed acting resident engineer of the project.

The commission will pass on all job items done by cooperating agencies as to plans, specifications, estimates, materials, equipment and execution. It will review all proposed contracts, make general decisions on engineering and construction methods, materials, etc., and will refer to the CAA all matters needing its decision as sponsor.

It was also announced that the public buildings branch of the Treasury Department's procurement division will have charge of the preparation of designs for the buildings, preparation of the specifications and advertisements for building contract bids. This division will also prepare the design of a seaplane base.

The Army Engineers have been allotted an advance of \$600,000 for dredging operations. General work is progressing at the site and will continue throughout the winter.

### Fire Destroys New Plane

San Antonio, Tex., Dec. 12—Fire, believed due to spontaneous combustion, yesterday destroyed a garage and an airplane under construction, with a loss of \$2,500 to the plane. The ship was being built by Douglas Simmons.

### Must Buy Gas at Home Field

Binghamton, N. Y., Dec. 13—The airport commission today ruled that after Feb. 1 all persons renting hangar space at Tri-Cities airport must purchase fuel at the field or forfeit their leases.

## Starting Service at Tampa



An Eastern Air Lines transport shown at Peter O. Knight Airport at Tampa, Florida, as it inaugurated service six days a week to the resort state's west coast via Atlanta.

## AMERICAN AVIATION

*The Independent Voice of American Aeronautics*

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## FORTNIGHTLY REVIEW

(Continued from page 1)

Army and the Navy, to name a few, will tell an educational story.

The story will be listened to by representatives of such organizations as the Conference of Mayors, the American Municipal Association, Kiwanis International, American Legion, American Federation of Labor, and dozens of other organizations that plan to make some phase of aviation training, development or education an important part of their respective organization activity for 1939.

Someone has hit on an idea that clicks. This movement deserves the active encouragement of the aviation industry generally, as well as aviation's public.

### Behind the Walls

**W**E HAVE watched the Civil Aeronautics Authority from the sidelines since its establishment. It was no surprise to anyone that a new organization of this scope would have several months of growing pains. It cannot be said that all of these growing pains have been eliminated, but we are glad to note that several of the potential friction points have been eradicated, or at least eased. There was bound to be dispute between the Air Safety Board and the Authority over matters of jurisdiction, policies and powers. No legislative act ever written was so clear that only one interpretation could be given immediately. But the Authority and its various components apparently have been able to settle their differences within the four walls of board rooms, and aviation should consider itself fortunate that it does not have the type of regulatory body which is not unknown in Washington. We have seen other bodies in which one or two men become public critics of their colleagues and through the medium of statements or inspired stories have scuttled their own organizations. The Air Safety Board and the Authority, however, ironed out their differences, drew up a working agreement, and are now progressing in harmony. December has seen an increased tempo in the handling of pressing problems. The five men on the Authority are working together smoothly and the entire picture has taken on brighter aspects. When one sizes up a government agency the safest view is usually to contemplate what "it might have been."

### A Worthy Successor to Dr. Gregg

**I**N CHOOSING for its chief a man who is as widely experienced in aviation as is Lieutenant Commander Francis W. Reichelderfer, the U. S. Weather Bureau has indicated that it realizes the importance accurate weather forecasting plays in aviation. Comdr. Reichelderfer is a qualified pilot in the heavier-than-air, lighter-than-air and free balloon branches of the Navy; he established the air mass and frontal analysis methods of forecasting. Dr. Willis R. Gregg, former chief who died Sept. 14, was keenly interested in aviation's intricate weather problems, and often admitted that he had just "scratched the surface," particularly in connection with radiometeorograph work. Comdr. Reichelderfer has the experience to carry on adequately where Dr. Gregg left off. It is good to know that an aviation man will continue to man this most important government bureau.

## The Importance of Training

**W**ITH the problem of training flyers and mechanics promising to assume increasing importance, a meaty summary on the subject, written by Robert W. Hambrook of the U. S. Office of Education for the Air Commerce Bulletin (dated Nov. 15), has aroused considerable comment. His conclusions are worth quoting, each of which is backed up with facts and figures, presented in the article:

1. More attention should be given to evening classes at or near airport repair bases for the continued training of employed aviation personnel in various types of work.

2. No person should be considered an apprentice unless provision is made for training in technical subjects outside of the shop through public or private schools as well as practical training in the shop.

3. All instructors of flying and ground school work should be given training as teachers or be required to show evidence of such training.

4. All aviation courses should be carried on to meet definite objectives recognized by the aviation industry.

5. The aviation industry and aviation training authorities should work together in order to meet certain demands for personnel and should avoid training persons not needed.

6. Aviation training schools resorting to extravagant advertising or offering courses of limited practical value should receive no encouragement from the aviation industry.

7. The subject matter for aviation training should always be determined through analyses of actual job requirements within the aviation industry.

Those who must shoulder the responsibility of organizing rapidly the coming aviation training program will do well to consider this contribution and the factors which made its preparation possible. The Office of Education is organized now. It has a well-trained staff in key points throughout the country. It should be called upon to aid in the gigantic air education project ahead.

## Fallacious Beliefs

**P**UBLIC FALLACY No. 1: That every aircraft and aircraft engine manufacturer in the United States is working at top speed on orders for the U. S. Government and for exports.

Ask ten "average citizens" whether the aircraft industry is working at top speed and at least nine will answer affirmatively without hesitation.

It is true that some of the manufacturers have large backlogs and are doing "good business." But the public does not realize that half of the industry is starved for orders, that several plants with names well known to the man in the street have practically no work at all and that other plants are engaged in costly production which leaves them in the red. To say nothing of well-equipped aircraft factories that are turning out parts instead of airplanes.

Perhaps there has been too much talk about the good business of some companies—or the big increases of exports—or of the impressive total dollar production for the industry as a whole. Efforts should be made to acquaint the public with the real facts, the real facts being that the existing plant facilities can handle a tremendous amount of business right now with the usual reservations of labor shortages. Congress won't be in session a week before some Congressman will address the House on the necessity of government factories because the private industry is working at top speed now. The sooner this false public conception is eliminated from daily thinking the better.

## What Others Say

"Planes should be able to operate on schedule, with adequate comfort for passengers, almost complete independence of weather and terrain, and a duplication and reliability of equipment so that failure of any one function at any time during take-off, flight, or in landing will not place the crew in a position where they must depend upon fortunate circumstances to bring them through safely"—J. A. Herlihy, vice-president in charge of operations, United Air Lines, quoted in Jim Bassett's "Skyways" column, Los Angeles Times.

"As a parting shot at the spy scare, I'd like to say that if the foreigners have found any worthwhile aviation secrets in this country, I'll be the first to faint with surprise. . . . We've got those foreigners worried, though. They can't, for the life of them, figure out what we are going to use in place of an air force in case there is war. That's got them stopped."—Major Al Williams in the Scripps-Howard Newspapers.

### Appreciation

"This is a real magazine. It is a model for other industrial magazines to copy. Keep it the same. You give us all the necessary news while it is news. Do not load your magazine with anything else."

George R. Shoemaker,  
 South Orange, N. J.

### Motor Falls Out

Waco, Tex., Dec. 5—Don Hurst, pilot of a Braniff Airways Lockheed Electra, landed safely here today with five passengers after one of its motors dropped out 6½ miles north of here, falling into a farmer's lot. Trouble developed about 15 miles north, on the run from Ft. Worth to San Antonio.



## CAA Sets Up New Division to Act Independently for Public Interest

The Civil Aeronautics Authority on Dec. 18 announced the creation of an economic compliance division which will act as advocate or prosecutor on behalf of the public interest in all economic regulatory cases heard before the Authority and its trial examiners.

In order that this division may be completely free of influences from both within and without the CAA, the division has been separated from all other divisions. While it will be directly responsible to the five-man Authority, "the Authority will not undertake to interfere or control the action of the Economic Compliance Division but will leave it free to make its own contentions on behalf of the public interest."

The division will inquire into all economic cases, such as rates, services and certificates of public convenience and necessity, interlocking relations, and consolidations and mergers, which are brought before the Authority by domestic and foreign air carriers. Where the facts warrant the division will appear as an advocate making contentions in the public interest against the granting of the applications.

This action by the CAA will be watched with keen interest by students

of government. Not only is the Civil Aeronautics Act itself an experiment in government, but this method of separating the functions of prosecutor and judge is intended to meet frequent criticisms directed against federal regulatory bodies.

Under this plan the Authority will preserve a judicial attitude as between the economic compliance division on the one hand and the applicant or defendant company on the other. The division will be part of the Bureau of Economic Regulation.

"The committee of bar associations and students of federal administrative procedure have criticized the independent commissions in recent years as combining the functions of prosecutor and judge which, they assert, results in procedure out of harmony with American traditions," the announcement said. "The Authority in its present action has sought to meet such criticism by separating the two functions and thereby attempting to accomplish the 'full and fair hearing' which was recently required by the Supreme Court's decision in the Morgan case."

Major feature of the Act establishing the Authority was the separation of quasi-judicial and administrative functions.

### Dex Martin Marries

Columbia, S. C., Dec. 15—Dexter Martin, director of aviation for South Carolina, and Miss Guynell Eison, were married here today. Mrs. Martin is in the office of Gov. Olin Johnson.

### Aero Library

**AIR PILOTING.** By Virgil Simmons. The Ronald Press Company, 15 East 26th Street, New York, N. Y. \$3.00

This book presents an excellent text, covering the entire field of piloting, beginning with advice to novices and continuing through the construction of an airplane and student piloting to instructions for instrument flying. Illustrations, both diagrams and photographs, are introduced in a praiseworthy manner. The author renders an invaluable contribution by including a series of some 300 questions (and answers) taken from official examinations for all grades of certificates. For the experienced pilot who is reviewing, as well as for the student pilot, Mr. Simmons performs a very practical service by giving reasons as he goes along, instead of saying the usual, "It just is."

The author was formerly flying instructor at the Boeing School of Aeronautics and in the U. S. Army and Navy Air Services. He has included in this manual all the timely knowledge that he has gleaned while training many hundreds of pilots; designing it for use as a textbook in primary and advanced courses in schools, although it can be adapted as a practical guide for students and pilots who wish to attain greater proficiency in precision flying. "Air Piloting" takes its place with not more than one or two other books that can be called excellent in this field.

**PRINCIPAL U. S. INVESTIGATIONS IN AERONAUTICS, 1918-37,** compiled by Arthur G. Renstrom, Division of Aeronautics, Library of Congress. Reprinted from *Air Law Review*. 8 pages. Free.

## Moffett Trophy Won by Northampton Unit

The Navy Department on Dec. 17 announced that the Rear Admiral William A. Moffett Memorial Trophy has been won for the fiscal year 1938 by the aviation unit of the U.S.S. Northampton. Lieut. Robert Goldthwaite was the senior aviator for the unit and is the recipient of the trophy. The Northampton is the flagship of Cruiser Division 4, Scouting Force, at San Pedro, Calif.

Capt. A. S. Carpenter, U.S.N., was in command of the Northampton during the first part of the competition year and Capt. Francis A. L. Vossler has been in command since Jan. 14, 1938.

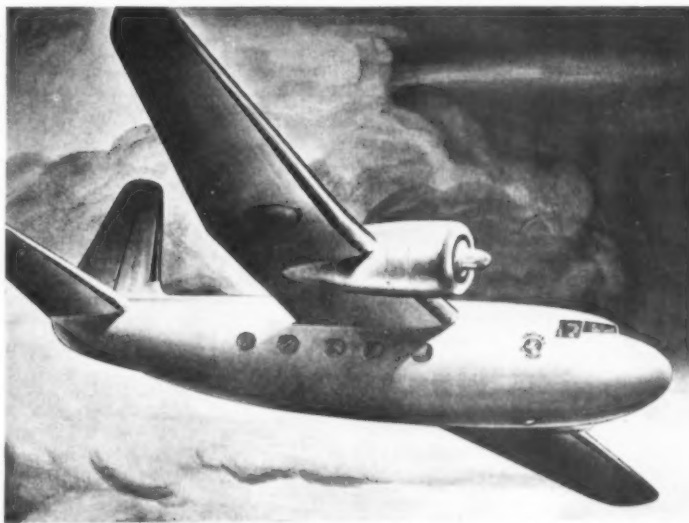
The Moffett trophy is awarded annually to the battleship or cruiser based aviation unit which conducts its operations throughout the year with the maximum of safety; that is, flying the greatest number of hours during the fiscal year with proportionately the fewest injuries to personnel and least damage to material. The trophy is a large silver plaque mounted on a walnut base and has been purchased from voluntary contributions received from naval aviators in memory of the former chief of the Bureau of Aeronautics. Forty-one units competed for the trophy this time. Thirteen units completed the year with no penalties charged for accidents.

Lieut. Goldthwaite was born in Montgomery, Ala., in 1903 and appointed to the Naval Academy in 1920. He was designated as a naval aviator in 1927 and has served with aviation squadrons of the fleet since that time with the exception of four years of duty at Pensacola and a year with the Bureau of Aeronautics in Washington.

### Gen. Arnold's Book Ready

The revised edition of the book "This Flying Game," written by Brig. Gen. Henry H. Arnold, chief of the U. S. Army Air Corps, is off the press, according to Funk & Wagnalls Co., publishers. Co-author with Brig. Gen. Arnold is Lieut. Col. Ira C. Eaker, Air Corps official and pilot. The book covers the most recent developments in war and peace-time aviation, with special attention given to activities in China and Spain.

## First Glimpse of the Douglas DC-5



Shown above is designer's sketch of the 16-passenger high-wing Douglas DC-5 which will be ready for tests in February.

## De Havilland Introduces 22-Passenger Liner



The Frobisher, first of five "F" class passenger liners ordered by Imperial Airways from De Havilland, will go into Continental service soon. Another version of this type (Albatross), built for mail carrying exclusively, split in mid-fuselage after an overload test Aug. 27. The modification increased structure weight 12½ lbs. The Frobisher, built of wood with stressed skin, has four Gipsy 12 air cooled motors, rated at 505-525-hp. Top speed is about 222-mph. Cruising rate is about 210-mph. Eight passengers are carried in each of the two forward cabins and six in the rear compartment. About 600-lbs. of mail or express is accommodated. The plane recently flew from Croydon to Le Bourget with 17 passengers in 53 minutes, a new record for commercial craft, with an average of nearly 228-mph. Shown in the background of the lower photo is the veteran Heracles, believed to have carried more passengers and flown more hours than any other airliner in the world.

## Johnson-Craig Split Discounted in Wash.

Press reports and gossip in Washington that the Army's chief of staff, Gen. Malin Craig, was opposed to the aircraft building program of Assistant Secretary of War Louis Johnson, has been completely discounted by those who have been following the national defense plans closely.

The talk was directly connected with the fact that Johnson, as assistant secretary, has taken the spotlight from his superior, Secretary of War Woodring.

The fact is that the President went over the head of Woodring and called upon Johnson to prepare the defense plans and Johnson has had the President's ears for some time.

Far from being on the outs with the air-minded Johnson, Craig is understood to have gone Johnson one better in drawing up estimates of needs for aircraft and has been in on all conferences. As for the predictions of the past year and a half that Johnson would succeed Woodring, many believe the change is getting closer but there are also indications that Woodring will remain in office with Johnson continuing to supervise air defense plans.

## THE C.A.A. RECORD

(Applications, Hearings, Dockets)

### APPLICATIONS

#### B-M Interlocking Relationships

Boston-Maine Airways on Dec. 13 filed application asking the CAA for approval of various interlocking relationships of its officers and directors. The company's officers hold positions with other carriers as follows: Paul F. Collins, president and director, no connections; Samuel J. Solomon, vice-president and director, is also vice-president and director of National Airport Corp.; Laurence F. Whittemore, vice-president and director, is assistant to the president of Boston and Maine and Maine Central Railroads; John W. Rimmer, vice-president and director, is vice-president-traffic of B & M and M-C; George F. Glacy, treasurer, is comptroller and assistant to the president of the same companies; Arthur B. Nichols, clerk and director, is vice-president and clerk of the railroads; William A. Cole, counsel and director, is general attorney for the railroads; Albert J. Raynes, director, is comptroller and treasurer of the same companies, and Henry F. McCarthy, general traffic manager, is passenger traffic manager.

#### Imperial Files for N. Y.—London Service

Imperial Airways on Dec. 20 asked the CAA for permission to operate New York-London service, either via Shannon Airport (Ireland), Newfoundland and Montreal, or Lisbon, Azores and Bermuda. Detailed story elsewhere.

#### EAL-Delta Application Dismissed

The CAA on Dec. 14 issued a special order dismissing a joint application of Eastern Air Lines and Delta Air Corp. seeking permission to transfer from the former to the latter a portion of AM40 between Memphis and Tallahassee. EAL requested dismissal of the application after municipalities along its routes expressed the opinion that the transfer would not be in the public interest.

### HEARINGS

#### Mid-Continent, Pan Am Rate Hearings

The first two air mail rate hearings were announced by the CAA on Dec. 16. Mid-Continent's application for higher rates on AM26 was to be held Dec. 28, after this issue went to press. Hearing on Pan American Airways' Pacific route is to be held Jan. 16. It is also probable that another hearing will be set between the Mid-Continent and Pan Am proceedings. All members of the CAA are expected to be present. It was pointed out that the order in which applications were filed will not determine the sequence in which they will be considered. Mid-Continent's being chosen first because it was believed to be an average case. The CAA hopes to handle one hearing a week.

#### UAL-WAE Hearing Postponed

Postponement "until further notice" of the United Air Lines-Western Air Express hearing, scheduled for Dec. 21, at which time the companies were to seek permission to lease DST sleeper equipment from each other at Salt Lake City, was announced on Dec. 17. In postponing the proceeding, CAA Examiner Lucian Jordan stated that "the parties to the above-mentioned agreement intend to cancel the same and to enter a new agreement which will be filed with the Authority."

TWA had filed application for permission to intervene in the case on the grounds that the arrangement would be unlawful under sections 408(a)(1) and 408(a)(2) of the Civil Aeronautics Act. Also, TWA claims, "it establishes an unfair and deceptive practice and an unfair method of competition in air transportation and as such is prohibited by section 411 of the Act . . . It results in creating a monopoly or monopolies and thereby restrains competition."

Prior to the establishment of the Civil Aeronautics Authority, UAL and WAE submitted three different contracts to the Post Office Department and were refused each time. TWA protested all contracts. Approval of the arrangement would allow UAL and WAE to operate a Newark-Los Angeles transcontinental sleeper service without a change of planes at Salt Lake City.

#### Penn-Central Hearing

CAA Examiner R. J. Bartoo on Dec. 15 heard Pennsylvania-Central Airlines Corp. ask for certificates of convenience and necessity on routes between Detroit and Norfolk, Detroit and Milwaukee, Washington and Buffalo, Detroit and Sault Ste. Marie, Pittsburgh and Buffalo and Pittsburgh and Baltimore. C. W. Jacob, assistant to the vice-president-sales, and Hamilton O. Hale, counsel, were present for American Airlines and stated that their company would offer strenuous objection if the examiner's proposed report allowed PCA to operate non-stop direct service between Chicago and Washington or Chicago and Detroit.

C. Bedell Monro, president of PCA, testified that the company operated 97.42% of its scheduled mileage during the "grandfather" period, and completed 77% of its trips on time. The revenue passenger load factor for the period was 55.53%, he said, adding that the company has never had an accident. Fred Crawford, vice-president and secretary, stated that 250,000 shares of stock were outstanding on Aug. 22 and were held by 332 stockholders. Frederick A. Ballard appeared as counsel for PCA and E. M. Weld represented the CAA.

#### Chicago & Southern

In a hearing held before CAA Examiner George Keyser on Dec. 13, Chicago & Southern Air Lines asked for a certificate of convenience and necessity on AMS, Chicago to New Orleans via Peoria, Bloomington, Springfield, St. Louis, Memphis, Greenwood and Jackson.

Because of some question as to the right of the applicant to stop at Bloomington, Ill., a proposed report will be issued in the case. Although the Post Office and the Illinois Commerce Commission have authorized the stop, C & S has performed no service because the Bloomington airport is not considered adequate. It is known, however, that Bloomington will be incorporated in the certificate as issued.

Carleton Putnam, president, testified that C & S had on Aug. 22 100,100 shares of no-par common and 35,000 shares of \$10 convertible preference issued and

outstanding. A total of 85,100 common shares are held in a voting trust of which Putnam is sole voting trustee. Beneficial owners are: Putnam, 58,595 shares; D. D. Walker, vice-president, 23,118 shares; Amos Culbert, vice-president-treasurer, 1,500 shares, and Bruce E. Braun, vice-president-operations, 800 shares.

During 1937, Putnam stated, C & S pilots were paid on an average of \$601.91 per month, and for the first 10 months of 1938, received an average of \$639.59. Co-pilots wages for the same periods were \$201.74 and \$206.91, respectively. During the "grandfather" period, C & S's mail load averaged 91.9 lbs. per trip; 99.87% of scheduled mileage was flown, and revenue load factor was 46.72%.

M. H. Goodnough, CAA air carrier inspector, stated that the applicant had experienced no mechanical trouble and that service during the "grandfather" period had been adequate and efficient. Amos Culbert appeared as counsel for C & S, and Hubert Schneider represented the CAA.

#### ALMA Fails to Appear in EAL Case

After requesting a 16-day recess from Dec. 2 in order to prepare its case in opposing the granting of certificates of convenience and necessity to Eastern Air Lines, the Air Line Mechanics Association failed to appear before CAA Examiner C. Edward Leasure on Dec. 19, informing the CAA that the company was negotiating with the union. The ALMA had opposed the certificates on the ground that, because of labor trouble, EAL was not fit, willing or able to perform adequate and efficient service. Examiner Leasure closed the hearing on Dec. 19 and stated that he would proceed to write the proposed report as soon as possible.

#### Pan Am Bermuda Hearing

CAA Examiner F. A. Law on Dec. 28 was to have held a hearing on Pan American Airways' application for a permanent certificate of convenience and necessity to carry passengers, property and mail between New York and Bermuda, with the right to substitute Baltimore or Charleston, S. C., as the terminal point in the U. S. The company also asked a temporary certificate for operations between Baltimore and Bermuda with a stop at New York.

### PROPOSED REPORTS

#### Recommends Continental

CAA Examiner A. G. Nye on Dec. 16 recommended that Continental Air Lines be granted a certificate of convenience and necessity on its route from Denver to El Paso, with intermediate stops at Colorado Springs, Pueblo, Trinidad, Las Vegas (N. M.), Santa Fe, and Albuquerque.

#### Inland Air Lines

Certificates of convenience and necessity for Inland Air Lines were recommended in a proposed report issued Dec. 17 by CAA Examiner Lucian Jordan on a route from Cheyenne to Great Falls, via Casper, Sheridan, Billings and Lewistown; and from Cheyenne to Huron, via Rapid City, Black Hills Airport and Pierre.

#### United Air Lines

In a proposed report served Dec. 17, CAA Examiner Francis W. Brown recommended that United Air Lines be granted certificates of convenience and necessity on the following routes: Newark to Oakland, via Allentown, Akron, Cleveland, Toledo, Chicago, Moline, Iowa City, Des Moines, Omaha, Lincoln, Grand Island, North Platte, Denver, Cheyenne, Rock Springs, Salt Lake City, Elko, Reno, Sacramento and San Francisco; Seattle to San Diego, via Tacoma, Portland, Medford, Sacramento, Oakland, San Francisco, Monterey, Fresno, Bakersfield, Santa Barbara and Los Angeles; Salt Lake City to Seattle, via Boise, Pendleton, Portland, and Tacoma; Pendleton to Spokane via Walla Walla, and Denver to Cheyenne. The above routes will carry mail, passengers and express. The following routes will carry passengers and express only: Seattle to Vancouver; Cleveland to Newark via Camden, and Camden to Allentown.

#### WAE Certificates Recommended

George Keyser, CAA Examiner, on Dec. 17 stated in his proposed report that Western Air Express should be granted a certificate of convenience and necessity to operate between San Diego and Great Falls, with stops at Los Angeles, Las Vegas, Salt Lake City, Pocatello, Idaho Falls, West Yellowstone, Butte and Helena. The company did not file for permission to stop at Long Beach, Calif., or Ogden, Utah, stating that the former point was served from Los Angeles and that the latter stop did not produce sufficient business. "Where the evidence is so positive as this record discloses, the Authority should not require the carrier to make an additional application for discontinuance of a service," Keyser said, discussing the two stops. "Nowhere does the law state that a carrier must apply for and prove all the service performed during the statutory period, in order to obtain the rights given him under section 401 (e) (1)."

### MISCELLANEOUS

#### Camden Alternate UAL Stop

United Air Lines' route and weather letters of competency were amended by the CAA on Dec. 14 to add Camden, N. J., as an alternate airport for day and night operation for both Boeing and Douglas planes. The amendment allows landings with all equipment, but take-offs with passengers are restricted to Boeings because of the limitations of the Camden airport. UAL's Douglas planes are all DC-3's.

#### NWA Revises Rates

Northwest Airlines on Dec. 17 told the CAA that after Jan. 1 it would put the following roundtrip rates in effect: Chicago-Portland and Chicago-Seattle, \$160; Chicago-Spokane, \$138, and Chicago-Vancouver, \$174.20. United Air Lines will also return to these rates on the same date. The action was the result of a meeting held before Norman B. Haley, acting director of the CAA's bureau of economic regulation on Dec. 9 (AMERICAN AVIATION, Dec. 15). Between the remainder of the points on its system, NWA will retain its excursion rates.

### Calendar of Hearings

Dec. 28—Mid-Continent Airlines. Application for increased air mail rates on AM26.

Dec. 29—Pan American Airways. Application for certificates of convenience and necessity on New York-Bermuda and Baltimore-New York-Bermuda service.

Jan. 6—American Airlines. Application for certificates of convenience and necessity. (Continued from Dec. 20-21.)

Jan. 16—Pan American Airways. Application for increased air mail rates on trans-Pacific route.



## Traffic Conference for Airlines Formed; M. L. Redfern Manager

Filling a need that has been recognized for some years, an Air Traffic Conference of the Air Transport Association has been formed with M. L. Redfern as manager and secretary, according to Fowler W. Barker, secretary of the ATA. The conference will have its offices in the ATA headquarters in Chicago.

Charles A. Rheinstrom, vice-president in charge of sales for American Airlines, has been chosen president of the conference. Other officers are D. D. Walker, vice-president of Chicago and Southern Air Lines, vice-president; Ray W. Ireland, of United Air Lines, vice-president; and Charles Beard, vice-president of Braniff Airways, and Vince Conroy, general sales manager of TWA, as members of the organization committee.

Redfern has been assistant personnel director of United Air Lines and before that he was United's district traffic manager in New York City. A graduate of University of Michigan, he has been in aviation for ten years.

Considered an important step forward in the coordination of air transport activities, the traffic conference will deal with all airline traffic problems, particularly those concerning tariffs and schedules. It will work along the general lines of the steamship conference.

### KLM Names Agent

The Holland-American Line has been appointed passenger representative in the United States and Canada for KLM Royal Dutch Airlines, according to announcement made recently by F. Ra. Wierdsma, the steamship company's general manager in New York.

## Walker to United

J. B. Walker, traffic vice-president of TWA for the last three years, has been named New York regional traffic manager of United Air Lines, assuming his new duties Jan. 1. After his graduation from the University of Arkansas, he spent 10 years in advertising, allied with industrial organizations and traffic agencies. In 1928 he became traffic vice-president of Greyhound Bus Lines, and later was vice-president of Beaumont-Hohman Advertising Agency. UAL is creating a regional office at New York in anticipation of heavy world's fair traffic.

## BREEZE BUILDS NEW DF Indicator Employs Vertical Antenna And Company Claims Greater Accuracy

A short-wave direction finding indicator utilizing a special vertical antenna and newly developed associated apparatus is announced by Breeze Corps., Inc., after five years of study. The device, which is said to become more efficient as shorter wave lengths are used, shows the bearing visually. Actual indication of the direction does not depend on hearing a weak signal. Effects of static are considerably minimized. It is also said that errors in reading direction of the incoming radio wave, that tend to appear in systems using loop antennas, have been eliminated.

The Breeze direction indicator, on demonstration on a plane, enabled the pilot for the first time to obtain accurate direction bearings on short wave signals, the company reports. A modified form of this equipment has also been operated as a ground mechanism to determine the direction, from the station, of an airplane in flight.

## Cullison Registers

### As a Mexican Agent

Douglas L. Cullison, who has been directing the airport survey for the Civil Aeronautics Authority, registered with the State Department recently as the representative of the State of San Luis Potosi in Mexico and as the agent in this country for General Saturnino Cedillo, the so-called rebel chief. All agents for foreign governments and foreign concerns handling anything except purely business matters must register with the State Department.

When the registration became known, CAA officials conferred with the State Department and it was revealed that Mr. Cullison has actually engaged in no activity and that no activity was contemplated. As a fiscal agent he was authorized to borrow and administer funds for account of the principals, the remuneration to be based on a percentage of moneys raised. Mr. Cullison is understood to have given assurance that the representation was ended as far as he was concerned but the contract could not be broken because the whereabouts of Cedillo in Mexico were unknown. Both the CAA and the State Department dropped any further discussions.

When questioned by a representative of AMERICAN AVIATION as to whether he was the Douglas L. Cullison involved, Mr. Cullison denied the identity and said the person concerned was "a fourth cousin" by the same name. Later he chose to deny making this statement. Mr. Cullison is a research worker and statistician brought into the CAA for the specific purpose of correlating data gathered by the Survey and to write a report for CAA consumption.

## WHAT'S THIS?

Jim Mead Stirs Interest By His "Candidates"

Senator-Elect James M. Mead, New York Democrat, created a flurry of industry talk in Washington the other day when he announced publicly that he had sent the names of three of his former Congressional colleagues to President Roosevelt "for appointment to the Civil Aeronautics Authority."

The trio, defeated for reelection, are Representatives Donald Dobbins of Illinois; Amie Forand of Rhode Island, and George Kelly of New York.

Although appointed by the President for designated terms last summer, the five members of the Authority must still face confirmation in the Senate in January. This little matter is known to have been of some concern to several of the members but there has been very little indication that the Senate would find much objection to the appointments. Nevertheless, Jim Mead's action wasn't one that could be disregarded entirely.

## UNITED PROMOTIONS

Merchant, Stimpson and Ahrens Made Regional Managers

United Air Lines has announced establishment of regional traffic headquarters in Los Angeles, San Francisco, Chicago and New York. Homer Merchant, district traffic manager in Los Angeles, becomes regional traffic manager for Southern California; S. A. Stimpson, district manager at San Francisco, becomes regional traffic manager for Northern California, Nevada and the Orient; and Russ Ahrens is similarly promoted for the regional office in Chicago.

The three men have each had approximately ten years service with United. The fourth regional office in New York is to be filled by John B. Walker and is announced elsewhere in this issue.



## TWA FLIES THIS NATURAL ROUTE

Fly this great natural transcontinental route — since pioneer days the nation's most popular coast-to-coast travel-way.

The shorter, more direct route of the Santa Fe Trail — picked for TWA has many advantages. You fly over the broad, open stretches of the Southwest — over the Painted Desert, Meteor Crater, Boulder Dam — a route unsurpassed for winter sunshine!

TWA's giant Douglas Skyliners fly three coast-to-coast schedules daily, each way — plus convenient flights between major cities throughout the nation. Next time, fly TWA!

TRANSCONTINENTAL &  
WESTERN AIR, INC.



SHORTEST . . . .  
FASTEST . . . .  
Coast to Coast

**For the**  
**4 Daily Express Schedules New York to Miami**  
**2 Daily Schedules Chicago-Miami**  
**A New Daily Service From Atlanta to Tallahassee and Tampa**  
**The New York-Houston Express Service Extended to San Antonio**  
**With a New York to Brownsville, Through Express Soon to Start**  
**EASTERN Air Lines!**

## Canadian Civil Air Report Reveals World's 2nd Largest Freight Tonnage

Dominion Bureau of Statistics Announces 1937 Total Was Above 26,000,000-Lbs.; Aviation Investments, Exclusive of Trans-Canada System, Amount to \$5,000,000; 604 Planes in Country

Canadian civil aviation has become a \$5,000,000 investment and the world's second largest carrier of freight, according to a report just issued by the Dominion Bureau of Statistics at Ottawa, covering the year 1937. Since 1933 aircraft mileage for civil pilots has more than doubled and freight and express has increased 600%, to more than 26,000,000-lbs. from 4,200,000-lbs. Russia last year reported carrying 60,000,000-lbs. of freight but these figures are not substantiated. The corresponding total for U. S. civil aircraft (express) was stated to be about 6,000,000-lbs., in 1937.

The 37 municipal airports, with an investment of \$1,771,009, included four valued at more than \$100,000; Vancouver's land and water terminal, \$737,000; St. John, N. B., (land) \$314,709; Regina, Sask. (land) \$200,000; and Edmonton, Alta. (land) \$165,070. Airports other than municipal totaled 121, bringing total number of airports to 158.

Accident statistics show that for 122,259 flights of commercial operations, amounting to 92,067 hours in the air, there were four accidents resulting in death or injury and 49 accidents resulting in property damage only. One airman, two passengers and a bystander died as result of accidents in commercial service in 1937. Two airmen and three passengers were injured. In lightplane club activities there were 3 accidents causing death or injury and 25 causing property damage only. Three airmen and one passenger died out of 53,321 flights amounting to 20,549 hours flown. In forest protection, exhibition, miscellaneous and other categories, amounting to 11,009 flights of 8,818 total hours,

there was one accident causing death or injury and two causing property damage only. One airman and one passenger died in these types of flights. International companies reported no accidents. Non-flight accidents injured five employees (no fatalities) and caused estimated damage to aircraft of \$169,866 and \$1,330 in other damage and expenses.

Accident averages for 1937 and 1936 have been computed for commercial craft as follows, with 1936 figures in parentheses: Accidents per 1,000 aircraft flights .434 (.405); accidents per 1,000,000 aircraft miles 5.720 (6.197); fatalities per 1,000 aircraft flights .025 (.092); fatalities per 1,000,000 aircraft miles .324 (1.408).

The report states that 565 forest fires were detected from the air and reported by commercial, provincial and dominion planes, and that 29,471-sq. miles were sketched and photographed, exclusive of 80,000 sq. miles photographed by national defense planes.

All lightplane clubs shown in the tables on this page are subsidized by the government to train pilots. Dominion and provincial aircraft listed are engaged almost solely in forest protection, aerial surveys and similar work. Data for international companies include only operations between Canadian and U. S. ports. Such mail is under both Canadian and U. S. postal contracts. Commercial companies also carry mail for mines and firms, but not under postal contract. One company has a contract with the means of transportation optional. These facts account for the difference between the total mail carried by air and that carried under postal contracts.

## R. J. Moffett Heads Air Transport Association for Canadian Industry

Operators, Manufacturers and Accessory Firms Unite in New Organization; Fully Representative of All Canadian Air Interests

Ottawa, Canada—With a membership increase from 16 to 46 during the past year, the Commercial Air Transport and Manufacturers Association was re-organized late in November into the Air Transport Association of Canada. A four-day meeting was held in Toronto to perfect the organization which now is representative of the major air transport operators, aircraft and engine manufacturers and accessory companies in Canada.

Major activities of the association during the past year have been associated with the revision of air regulations in which an advisory committee of the association cooperated with officials of the Department of Transport; with the British Air Missions and in the revision of customs tariffs.

Officers and directors for 1939 are: R. J. Moffett, of Montreal, president; W. J. Sanderson of Fort Erie, vice-president; D. S. Ormond, of Winnipeg, secretary; P. C. Garratt of Toronto, treasurer, and the following directors: W. L. Brintnell, Edmonton; Grant MacDonald, Winnipeg; D. R. MacLaren, Montreal; G. A. Thompson, Winnipeg; and R. W. Starratt, Hudson, Ont. The active secretary and treasurer is W. B. Burchall who maintains his headquarters in Ottawa.

Membership is as follows:

### Operators

Arrow Airways Limited  
Canadian Airways Limited  
Canadian Colonial Airways

Dominion Skyways Limited  
K. Johannesson Flying Services  
Laurentian Air Services Limited  
Leavens Bros. Air Services Limited  
MacKenzie Air Service Limited  
M & C Aviation Company Limited  
Northern Airways Limited  
North Shore Airways Limited  
Quebec Airways Limited  
Starratt Airways & Transportation Ltd.  
Trans Canada Air Lines  
United Air Transport Limited  
Wings Limited

### Manufacturers

Boeing Aircraft of Canada Limited  
Canadian Car & Foundry Company Ltd.  
Canadian Pratt & Whitney Aircraft Ltd.  
Canadian Vickers Limited  
Canadian Wright Limited  
Cub Aircraft Limited  
De Havilland Aircraft of Canada Ltd.

Fairchild Aircraft Limited  
Fleet Aircraft Limited  
Montreal Aircraft Industries Limited  
MacDonald Bros. Aircraft Limited  
National Steel Car Corporation Ltd.  
Noorduyn Aircraft Limited  
Ottawa Car Manufacturing Company Ltd.

Standard Machine Works  
White Aircraft (Canada) Limited

### Associates

Aluminum Company of Canada Limited  
Aviation Electric Limited  
Bendix Eclipse of Canada Limited  
British Aeroplane Engines Limited  
Canadian Marconi Company Limited  
Canadian Aviation Insurance Managers Ltd.  
B. W. Deane & Company Limited  
Imperial Oil Limited  
International Paints (Canada) Limited  
Link Manufacturing Company Limited  
Massey Harris Company Limited

## Statistical Summary, Canadian Civil Aviation

	1934	1935	1936	1937
Firms making aircraft .....	6	10	7	8
Firms chiefly operating aircraft ..	125	123	116	162
Flights made .....	128,031	153,211	160,014	190,403
Aircraft hours flown .....	75,871	88,451	101,953	126,896
Total aircraft mileage .....	6,497,637	7,522,102	7,803,942	10,755,524
Freight or express (lbs.) .....	14,441,179	17,615,910	25,387,719	26,279,156
Mail carried (lbs.) .....	625,040a	1,126,084a	1,161,069a	1,450,473b
Total civil airports .....	101	96	155	158
Total aircraft .....	388	380	475	604c
Commercial pilots .....	405	414	380	329
Limited commercial pilots .....	—	—	65	122
Transport pilots .....	—	—	42	73
Private pilots .....	429	496	559	635
Air engineers .....	461	472	533	595

a—Canadian postal contracts  
b—Carried under Canadian postal contracts, 1,323,584-lbs.  
c—32 were sea boats, one was amphibian, 322 were landplanes, and 249 were convertible (wheels, floats, or skis).

	Light Plane Clubs	Provincial & Dominion	Internatl. (a)	Commrcial	Total
Number of clubs .....	22	—	—	—	22
Number of members .....	1195	—	—	—	1195
Non-flying members .....	1200	—	—	—	1200
No. of Plane Flights .....	53,321	11,009	3,814	122,259	190,403
No. miles flown .....	29,900b	699,777	762,333	9,263,514	10,755,524
No. hours flown .....	20,549	8,818	5,462	92,067	126,896
Gasoline used (gals.) .....	138,822	126,971	139,189	1,817,751	2,222,733
Oil used (gals.) .....	3,946	3,419	3,317	54,139	64,771
Revenue passengers .....	380	9,352	101,132	110,864	121,628
Rev. pass. miles .....	8,163	7,010	1,300	13,821	30,294
Persons instructed .....	26,600	—	1,874,601	10,757,063	12,658,264
Frts. & Express (lbs.) .....	1,009	6	12	646	1,673
Mail lbs. (p.o. contracts) .....	—	1,961,546	12,836	24,304,774	26,279,156
Ton miles, frt. & exp. .....	—	—	189,344	1,261,129	1,450,473c
Ton miles of mail .....	—	uncomputed	1,080	1,874,723	1,874,723
a—Flying between Canadian and U. S. ports b—Station to station only c—Carried under Canadian postal contract, 1,323,584-lbs. Of total stated in table, international companies carried 189,344-lbs., commercial companies 1,261,129-lbs.					

\*Investment in Canadian Civil Aviation as of Dec. 31, 1937

	Govt.	Lightplane Clubs	Commercial	Total
Land and buildings .....	\$7,000	\$31,735	\$772,997	\$811,732
Aircraft .....	\$15,000	\$83,928	\$2,792,687	\$2,991,615
Tools, equipment .....	3,900	9,684	444,046	457,630
Furniture, office equip. ....	—	4,224	40,035	44,259
Organization expenses .....	—	2,576	1,036,544	1,039,120

\*Investments of Dominion Government in Trans-Canada Air Lines are not included.

	Total oper. revenues	Total oper. expenses	Net oper. revenues
	\$266,691 (red)	\$15,640	\$282,331 (red)
	Revenues and Expenses of Canadian Civil Aviation		
Total oper. revenues .....	248,776	2,985,504	\$3,234,280
Total oper. expenses .....	233,136	3,432,269	\$3,932,096
Net oper. revenues .....	\$266,691 (red)	\$15,640	\$282,331 (red)
	Employees, Salaries & Wages		
Employees (number) .....	78	70	617
Salaries & wages .....	\$167,651	\$98,170	\$1,008,199

The Robert Mitchell Company Limited  
Morgan Nicholson Limited  
Northern Electric Company Limited

The revitalized association takes the place of the old group which had been in existence for four years. At the Toronto meeting, held Nov. 21-24, the speakers included A. M. Narraway, secretary of the Inter-Departmental Committee on Aerial Surveys who spoke on "Aerial Survey in Canada"; W. E. Campbell, director of the traffic department, Board of Transport Commissioners, who spoke on licensing of air routes and filing of tariffs; J. Patterson, controller of the air services, meteorological department, Department of Transport, who spoke on weather information for northern operations.

## Imperial Uses More Than 50 Planes for Holiday Empire Mail

More than 50 landplanes and flying boats, described as the largest fleet of planes ever assembled by a commercial operator, have completed Imperial Airways' first Christmas mail assignment since the Empire routes took over all first class mail without special labels or surcharge. "It was the greatest scheme of arial mail distribution ever undertaken by any air transport organization," the company reports.

Total tonnage is expected to approximate 350. In the week to Nov. 13, 23 tons left Great Britain by air; in the next week the total was 26½ tons; the following week saw 31 tons sent out-bound, and in the week ending Dec. 1 the figure was 80. On Dec. 2 the Southampton (flying boat terminal) crews handled 15 tons of incoming and outgoing mail in 12 hours. Landplanes use the London Croyden terminal.

Service over the more than 28,000 miles of Imperial routes touched Australia, the Far East, India, as well as Africa, or about 40 territories in all. For the first time a complete landplane route to Calcutta was run. Letters are carried at the U. S. equivalent of 3¢ for each half ounce, and postcards are 2¢.

All types of ships were pressed into service, from the well known composite ships, *Maia* and *Mercury*, and the giant *Enigma*, to one Avro trainer borrowed from a training school. Craft were leased from commercial firms along the routes, including one Australian National Airways plane. Passenger service was discontinued for the period. Furnishings were removed and crews reduced on the big ships from five to three, to accommodate more payload. Appeals were broadcast throughout Britain and the Empire to mail early and keep the weight of each mailing piece to a minimum. Special tissue stationery is already in wide use, and this year special air mail weight Christmas cards and envelopes appeared.

Proponents of "all first class mail by air" in this country are awaiting final figures of Imperial with considerable interest.

### Three Lockheeds Delivered

Burbank, Calif., Dec. 10—Lockheed Aircraft Corp. announced that three Lockheeds were delivered last week to customers in North and South America. E. C. McLeod, pilot, and Ed Cruz, mechanic, flew a 10-passenger Electra 5,056 miles to Caracas, Venezuela, for Linea Aeropostal Venezolana. Flying time was 27 hrs. 20 min., one of the fastest deliveries Lockheeds has made to South America. A Lockheed 12 was delivered to Continental Oil Co., Ponca City, Okla., and a model 14 has been turned over to Santa Maria Airlines, of Santa Maria, Calif.



## Airline Personnel

F. R. Hollingsworth, Eastern Air Lines transportation agent at Jacksonville, has been assigned to Tallahassee as station manager.

Eastern Air Lines reports that Capt. W. S. Dawson and W. F. Philippi, and pilots C. W. Reineke and M. E. Thayer, are now based at Tampa.

Eastern Air Lines' marriage department announces the following amalgamations: Charles G. Miller, Jr., traffic, to Mrs. Lucille Anderson of Westport, Conn.; Walter John Sowecke, meteorologist at Newark, to Miss Mary Patricia Tittsworth; A. E. "Pete" Blomquist, head of the display department, to Frances Burke Haley, New York City (Prescott Tolmann, New York City division traffic manager, was best man); E. E. Goodyear, mechanic at Chicago, and Orlin Bray, at Greensboro were also recent bridegrooms.

Marguerite Shepherd, secretary of Capt. E. V. Rickenbacker, president of Eastern Air Lines, recently completed 15 years' service with the company.

George Dyson, station manager for Eastern Air Lines at Baltimore, won the \$100 prize in the company's economy and sales contest.

Rod Dixon, after a "breaking in" at Newark, has been shifted to Baltimore, by Eastern Air Lines, to join O. K. Stampely, who has been moved up "nawth" from Mississippi.

Jack Roddy, former flight steward for EAL, is now transportation agent at Camden. Louis Diapaz, formerly with United at Camden, is now transportation agent in that city for EAL.

Bill Craig, formerly relief man at Camden for Eastern, has enrolled at Dallas Aviation School for an instrument rating.

Capt. Leland Jamieson, EAL, is now on the Miami-Atlantic run. He has written a recent article for Saturday Evening Post.

Dick Howell has been transferred from Beaumont to Houston as EAL transportation agent.

The flying-marrying Mitchells of American Airlines won publicity from midwest newspapers recently. Pilot W. W. Mitchell was married to Stewardess Nell Mitcham in Ft. Worth. Previous records showed that Pilot Hewitt F. Mitchell had married Stewardess Marguerite Renshaw and Pilot Clement C. Mitchell, Jr., had wed Stewardess Adelaide McHenry.

Albert Gustafson formerly located at Chicago, has been assigned to the Westfield-Springfield, Mass., station as manager by American Airlines. He joined AA in 1932 as ticket agent at Chicago. Later he was at St. Louis, and Nashville, returning to Chicago in 1935. He is 32 and is married. He will be the only member of the company at the station.

Stewardess Margaret Schneider, of American Airlines, will be married Jan. 10 in Ft. Worth to Richard Copeland, regional CAA official in Atlanta. She joined AA in September, 1937, and is the 43d stewardess on the line who has resigned this year to be married.

Northwest Airlines has appointed Barbara Archer as traffic representative in the Rockefeller Center office of the company. She is an alumna of the Bennett School and is a certificated pilot.

Stewardess Beatrice Foltz, United Air Lines, San Francisco, recently eloped with Pan American clipper Pilot Ralph Phillips.

Two new stewardesses have entered the United Air Lines training school: Dimmy Long of Seattle and Oakland, who will be stationed at Oakland, and Luella Esplin, Logan, Utah.

Art Gruitch has been shifted from Newark by United Air Lines to Chicago dispatching. D. M. O'Keefe has been transferred to United's meteorological section at Newark, replacing Doc Bunting who joins Pan American's meteor staff at Miami. Les Miller, formerly of Cleveland, now is on the UAL Newark transmitter.

W. E. "Bill" Coleman, has been transferred to Miami ticket office of EAL after short periods in Charleston, Jacksonville, Savannah, and Orlando.

John M. Holland has joined EAL's mechanics staff at Mobile after serving in China where he taught the orientals how to repair their ships.

J. A. Perkins, EAL, has been transferred from Newark to Washington traffic. C. Lewis has been added to Newark traffic to replace Freddie Fuld, resigned.

These former United Air Lines men have joined EAL's reservations group in New York for the winter: Bill Denny, Dean Vogelaar (from Chicago), Don Strevel, (from New England), and Nowell Haas (from San Francisco).

Jack Frost, recently of Fairbanks, Alaska, is in charge of the new weather station at Richmond, Va., for EAL.

## United Starts a 100,000 Mile Club



Mrs. FRANKLIN D. ROOSEVELT.

Member of  
**UNITED AIR LINES'**  
**100,000 MILE CLUB**

*W. A. Patterson*  
PRESIDENT, UNITED AIR LINES



*The Mainliner*

W. A. Patterson, president of United Air Lines has mailed to approximately 1,000 men and women individually engraved gold metal cards giving them membership in the airline's "100,000 Mile Mainliner Club". They are for persons who have flown 100,000 miles in regular scheduled transportation. Above is No. 1 card which went to Mrs. Franklin D. Roosevelt, wife of the President, who is a frequent traveler by air.

### Canadian Car Contract

Montreal, Dec. 15—Canadian Car & Foundry Co. has been awarded a contract for an undisclosed number of first-line military planes by the British Air Ministry, apart from any orders which may be placed through the co-operative Canadian Associated Aircraft, Ltd., group of dominion manufacturers organized to build war craft for Great Britain. The announcement was made by Victor M. Drury, president, upon his return from England. He said the plant at Fort William thus will be able to employ 500 men eventually, and keep them working for the next two years.

### Nesbitt With Lear

Sydney Nesbitt, formerly of Canadian Aviation Magazine, has been appointed sales manager of Lear Developments, Inc., at Roosevelt Field, N. Y.

### Our Mouth Waters



Just to show what air transportation can do for gourmets, Paul F. Collins, president of Boston Maine Airways, dispatched to Col. Edgar S. Gorrell, president of the Air Transport Association, the giant New England lobsters shown above. Caught in the morning they arrived in Chicago at 3:45 p.m. the same day by American Airlines. Stewardess Mae Leslie and 1st Officer H. J. Young are shown with Chef Adolph Regert of the Eitel Restaurant. (Metropolitan News Photo).

*P. S. Dear Paul: You just have no idea how we like oysters and other sea food down here in Washington.*

### Old Timers Describe

#### Air Exploits of 1900

Philadelphia, Dec. 17—The Aero Club of Pennsylvania tonight elected Kern Dodge president at its annual meeting. Commemorating the Wright flight anniversary, the group heard speakers describe experiences relating to aviation's infancy. Capt. William Tate, who was stationed at the Kitty Hawk life guard station while the Wright Brothers worked nearby, described his relations with the inventors from 1900 to 1903. Orville Wright in 1901 had said, "Man will never fly for a thousand years. We have built a machine based upon all the science of aviation known today and it does not work." The first wind tunnel was built in the following winter, making possible accumulation of data which brought about the successful glider of 1902.

Capt. Tate's daughter, Mrs. Irene Tate Severn, told of her mother making cream satteen dresses for her from the covering of the 1900 Wright glider. Other speakers were Bennett Severn, formerly employed at the Naval aircraft factory in Philadelphia and a flyer in 1913; Percy Pierce, who built a glider in 1908; S. S. Jerwin, now Warwick Hotel comptroller, who was a graduate of the first class of the Moisant brothers' flying school in 1911, and from 1912 to 1916 was that institution's chief pilot. Others were William H. Sheahan, Frank Mills, Albert T. Bell, and Jack Milahan. Capt. Bill Kennedy, chief pilot of United Air Lines, was the main speaker.

Other officers elected were: Victor R. Fritz, 1st vice-president; Fred Vilsmeier, 2d vice-president; Ralph H. McClarren, secretary; William H. Sheahan, treasurer. Directors are J. Victor Dallin, Percy Pierce, C. T. Ludington, E. Burke Wilford, Lawrence Saunders, Frank Mills, Dr. Ben C. Gile, Lewin B. Barringer, Alfred L. Wolf, and A. J. Pasquerella.

### Traffic Men Form Co-Op.

Indianapolis, Ind., Dec. 15—Local traffic men have organized the Indianapolis Airline Association to stimulate passenger, mail and express revenue here. Officers are R. H. Gill, American Airlines, president; R. E. Fuller, Eastern Air Lines, secretary; Howard Goodrich, TWA, treasurer. Meetings are held monthly, for discussion of co-operative measures.

### Insurance Age Limit Removed

Associated Aviation Underwriters on Dec. 23 notified all airline operators that effective immediately, the age restriction has been deleted from their 25c airline trip policy. Insurance had formerly been available only to those between 15 and 70. The company announced that the move was "based on the safety record of scheduled airlines in the United States and the announced determination of the Civil Aeronautics Authority and the Air Transport Association to make the winter of 1938-1939 the safest in airline history."

### J. T. Gray Replaces Kerber

J. T. Gray, who has been employed in the aircraft airworthiness section of the Civil Aeronautics Authority's certificate and inspection for the past 10 years, has been named acting director of the section, succeeding Lawrence V. Kerber, who became Washington representative for Lockheed Aircraft Corp. on Dec. 1. Gray cannot be appointed permanently until some time in March, because Kerber is on extended leave until that time.

### Close Miami Aero Corp.

West Palm Beach, Fla., Dec. 11—Wright Vermilya, president of West Palm Beach Aero Corp., has announced the official closing of the Miami Aero Corp. at Miami and the removal of all operations to Morrison Field at West Palm Beach.

Mississippi State College reports that A. B. Friend, an alumnus, has resigned from the engineering department of the Aeronautical Corp. of America to join the engineering staff of Boeing Aircraft Co., Seattle. Lieut. H. W. Longino, another alumnus, has graduated from Kelly Field, Tex., and now has his commission in the Army Air Corps.

## Leaning Backwards

CONTINENTAL'S Operations Policy is based on the knowledge that it is cheaper to cancel a flight under doubtful conditions than to fly, regardless of number of seats sold. And that a perfect record is far more important than a high percentage of scheduled miles flown.

Thus, "leaning backwards" on flight decisions is a time-honored habit with CONTINENTAL



**World's Fastest-Scheduled  
Airline**

## Labor Dept. Excludes Light Plane Mfrs. from New Lower Minimum

**Tolerance Also Missing From Ruling, Which Sets 50¢ Wage for Workers Under Walsh-Healey Act**

In a sweeping about-face from the previous order of June 24, Secretary of Labor Frances Perkins on Dec. 14 issued a ruling that after Dec. 29, the minimum wages for employees of aircraft companies holding government contracts under the Walsh-Healey Act will be 50¢ per hour or \$25 for a week of 40 hours, either on a time or piece work basis, and that apprentices may be employed at lower rates if their employment conforms to the standards of the Federal Committee on Apprenticeship.

Significant also is the fact that manufacturers of light or commercial planes, as distinguished from military and large transport companies, are not included in the ruling.

The June 24 order, which brought a storm of protest from the industry and resulted in the granting of a re-hearing, stated that the minimum would be 60¢ per hour or \$24 a week of 40 hours. Not more than 15% of a company's employees could be learners, and these learners were to be paid 40¢ per hour or \$16 for a week of 40 hours.

The public contracts board, which held the re-hearing and recommended that Secretary Perkins issue the order, told her that there were 31,500 workers in the industry. Of these, 9,085 received 60¢ per hour or less, and of the 9,085, a total of 3,922 were engaged either in occupations which pay less than 60¢, or as laborers.

"A wage frequency table showing the distribution of the 3,922 employees in wage intervals of 2.5¢ shows that the first significant concentration falls in the interval between 50 and 52.5¢," Secretary Perkins' order stated. "In this interval appear 897 of the 3,922 employees. The first significant concentration in a wage table showing the wage distribution of all employees who receive 60¢ or less is also in the 50 to 52.5¢ bracket."

In justifying the removal of the learner tolerance, the order said, "A considerable number of the employees receiving 60¢ per hour or less are engaged in occupations which never pay less than 50¢ an hour. The nature of these occupations indicates that they are skilled or semi-skilled occupations of the type in which learning periods may be necessary. It therefore appears that no tolerance below 50¢ for learners is necessary."

On the question of the light plane companies, the following statement was made: "The Board advises me and the evidence of record indicates that the government does not make extensive purchases from the light or com-

mercial branch of the airplane industry; that that branch pays a lower minimum than that prevailing in the manufacture of heavy type airplanes; and that the production methods of the manufacturers of light airplanes differ from the methods used in the manufacture of heavy airplanes. Accordingly, light or commercial aircraft shall not be considered products of the airplane industry as defined for the purposes of this decision."

Representatives of the light plane industry, which only recently entered the government field by selling to the CAA and other departments, had not appeared at the original hearing on Mar. 10. At the re-hearing, however, they told the board that a 60¢ minimum would force them completely out of the government picture.

Arguments presented at the re-hearing against the 60¢ minimum, included the following: such a minimum was much too high; it would push up the entire wage scale; it would probably wreck the export market.

## Airsupply Co. Organized to Represent Aero Firms

Los Angeles, Dec. 13—Airsupply Co., headed by Clifford Garrett, president of Garrett Supply Co., has been organized here to act as vendor to the aircraft industry, the Los Angeles Chamber of Commerce announces. A complete line of aircraft production materials will be maintained. Offices are at 5959 West 3d St.

The following companies will be represented: Aero Supply Manufacturing Co., Inc.; Air Cruisers, Inc.; American Steel & Wire Co.; Benson Manufacturing Co.; Boots Aircraft Nut Corp.; Cleveland Pneumatic Tool Co.; Crucible Steel Co.; Dietz Light Co.; B. F. Goodrich Co.; Halcumb Steel Co.; Hayes Industries, Inc.; Pump Engineering Service Corp.; Boyersford Spring Co.; Sherwin-Williams Co.; Wellington-Sears Co.; Westinghouse Electric & Manufacturing Co.

## Stearman Hammond Plan

San Francisco, Dec. 13—A reorganization project for Stearman Hammond Aircraft Corp. is under consideration, planned to satisfy creditors, give stockholders opportunity to participate in future activities, and acquire working capital. About \$4,000 of the total of \$17,000 secured claims would be paid in cash, the remainder to be carried over for payment by the reorganized firm. Holders of unsecured claims which total about \$110,000 would be asked to take one share of new stock (62½¢ par value) in payment of each \$2.50 in claims. Present stockholders would receive only the right with all creditors to subscribe to the new stock on basis of one new share for 62½¢ for each old share owned, and in the case of creditors, right to subscribe in the ratio of one share for 62½¢ for each dollar in claims.

## Firms Lease at Alhambra

Los Angeles, Dec. 10—A three year lease for 72,000-sq. ft. of hangar space at Alhambra Airport has been closed by Lockheed Aircraft Corp. and Ryan Aeronautical Corp., it has been announced here. It is expected that most of the Lockheeds being built for Great Britain will be flown the 20 miles from the factory to the field, before being shipped.

## Watter to Budd Co.

Dr. Michael Watter has been appointed chief engineer of the aircraft division of the Edward G. Budd Manufacturing Co., Philadelphia, it was announced Dec. 12. Dr. Watter has been a technical editor of *Aero Digest* for some time.

## No. American Sets Up 'Incentive' Plan

Stockholders of North American Aviation, Inc., on Nov. 29 approved and placed into effect for the year ending Dec. 31, 1938, a modified bonus system for certain employees and officers, the Securities & Exchange Commission has been informed. The North American Incentive Compensation Plan will prescribe that a fund, amounting to not more than 10% of the year's net earnings nor more than the total paid in dividends for the year, will be determined upon and set aside by a special committee comprising members of the board of directors, who will not be eligible to benefit.

All officers and employees with salaries of \$2,400 a year or more, who have been with the firm since Jan. 1 of the year in question, will be eligible, but will be selected by the committee. No director will be eligible unless he shall have been an officer or employee since Jan. 1 with a salary of \$2,400 or more.

No more than 50% of the fund for any year may be distributed among the 10 principal officers and employees eligible, and no individual may receive more than 25% of the total fund of any year.

Half of each individual's benefit will be paid at time of announcement and the remaining 50% will be paid in two equal installments during December of the next two succeeding fiscal years. The committee will decide in individual cases whether persons who leave the company before completion of all payments are entitled to full award.

## Show Lockheed Vega Interest

Lockheed Aircraft Corp. holds 58% of the outstanding stock of its subsidiary, Vega Airplane Co., according to information filed with the Securities & Exchange Commission Dec. 10.

## Solar Aircraft Co.

Net profit of Solar Aircraft Co. for the 6 months ended Nov. 12 amounted to \$41,996.58, a 113% increase over the same period a year ago. This is 24.8¢ a share on the 169,318 shares of \$1 par value common capital stock outstanding. Net sales for the half year totaled \$372,355.83, an increase of 70.4% over the similar period last year.

## Seversky Aircraft Corp.

Net loss for the 9 months ending Sept. 30, 1938, was \$328,087 after interest, amortization, patents, depreciation, taxes, and the like.

## Air Associates, Inc.

For the year to Sept. 30, net profit was \$104,809, for Air Associates, Inc., equal to 86¢ each on 99,984 shares of common stock, as against \$83,390, or 77¢ each on 82,921 common shares in the preceding year.

## PARTS FIRM WILL SERVE WEST COAST

**Continental Aeronautic Corp. To Produce Instruments, Accessories For Aircraft Manufacturers**

Burbank, Calif., Dec. 12—Formation of Continental Aeronautic Corp., which



Rivers

will manufacture airplane instruments and parts for west coast aircraft manufacturers in a large plant at Burbank, was announced today by W. R. Angell, president of Continental Motors Corp.

While not a subsidiary of the Detroit company, the new concern will represent Continental Motors on the west coast.

Representing an investment of \$760,000, the company will occupy 11 buildings with total floor space of 161,000 sq. ft. on a 23½-acre site at Alameda and San Fernando Road, Burbank. Production is expected to be under way on Jan. 1. The company is well financed and will make no public offering of stock at this time.

Officers of Continental Aeronautic are W. R. Angell, president; W. R. Angell, Jr., vice-president; E. J. Rivers, vice-president in charge of production and plant manager; Lieut. Comdr. G. O. Noville, vice-president in charge of sales, and R. M. Allan, secretary and treasurer. W. R. Angell, Jr., has charge of the aviation division of Continental Motors, while Allan has been president of Continental Motors Pacific Company and vice-president of Gay Engineering Company of California.

Rivers, who has been in the industry for 25 years, has served as liaison engineer of the U. S. Army and as plant manager of General Aviation Corp., American Airplane and Engine Corp., Stinson Aircraft Corp. and more recently, North American Aviation, Inc.

Lieut. Comdr. Noville was second-in-command of the Byrd North Pole Expedition and executive officer of the Byrd South Pole Expedition. He was superintendent of the first transcontinental air mail and for several years was in charge of the aviation divisions of the Socony Vacuum Oil Co. and Standard Oil Co. of California. Lieut. Comdr. Noville also inaugurated and placed in service the Inter-Island Airways, Hawaii, and has for a number of years acted as an aeronautical consultant.

West coast manufacturers have formerly been forced to rely upon distant sources, sometimes as far away as the Atlantic seaboard, for instruments and spare parts. A partial list of products to be manufactured by Continental Aeronautic Corp. includes stampings, gas tanks, wing tips and tail surfaces.

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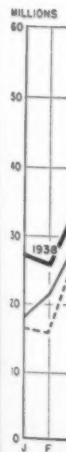
Incorporated Bristol, Pennsylvania Phone Bristol 867

With craft, en \$111,225 that the between 800, con of \$115. The situted producin and man similar at them best bus factories to capac foreign Ten r Aeronau show de duction against deliverie totaling 990 for merical \$13,475, 602,769. Other in paren merical \$36,829 517 (\$ parts, \$ engine sp 664).

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De Los A craft Div ing Corp bombers emment. Brazil an Brazilian last of 4 turned o Vultee to for Paris and J. A company

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## 1938 Aircraft Sales

## Near \$145,000,000

With 10 months' deliveries of aircraft, engines and spare parts reaching \$111,225,832, present indications are that the 1938 total will probably range between \$140,000,000 and \$145,000,000, considerably above the 1937 figure of \$115,076,950.

The last three months of 1937 constituted the best quarter of the year, producing 29.9% of the total business, and manufacturers do not expect the similar 1938 period to drop off, some of them predicting that it will show the best business of the 12 months. Many factories, it is pointed out, are jammed to capacity, primarily with military and foreign orders.

Ten months' figures released by the Aeronautical Chamber of Commerce show deliveries running ahead of production to the tune of \$111,225,832 against \$109,869,080. Military plane deliveries registered the biggest gain, totaling \$42,622,058 against \$27,855,990 for a similar 1937 period. Commercial plane sales fell off, showing \$13,475,971 as compared with \$16,602,769 last year.

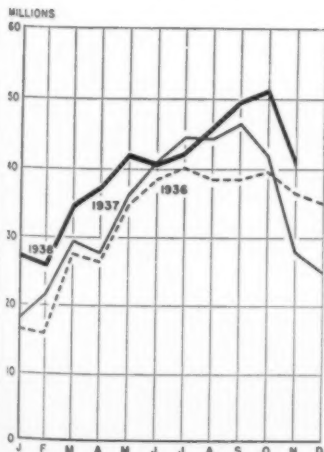
Other deliveries, with 1937 figures in parentheses, are as follows: Commercial engines, \$12,211,701 (\$12,736,829); military engines, \$15,424,517 (\$12,288,758); airplane spare parts, \$18,772,711 (\$13,023,572) and engine spare parts, \$8,718,874 (\$7,159,664).

## L. A. Sales Up 70%

Los Angeles, Dec. 15—Los Angeles County aircraft manufacturers and aviation accessories companies reported total backlog of nearly \$70,000,000 at the end of November, the Los Angeles Chamber of Commerce announced today. Gross sales of aircraft manufacturers during the first 11 months of the year were \$46,237,112, which is 70% above the output of the entire year of 1937 in this territory.

## Delivers 20 Ships to Brazil

Los Angeles, Dec. 12—Vultee Aircraft Division of Aviation Manufacturing Corp. has delivered 20 of 26 attack bombers ordered by the Brazilian government. Ten have been assembled in Brazil and are now being flown by Brazilian pilots. During November the last of 40 Turkish attack bombers were turned over to Capt. M. R. Ayers, Vultee test pilot, who will leave shortly for Paris to join Capt. Hugh Fenwick and J. A. Reece, who represented the company at the air show.

REVENUE PASSENGER  
MILES FLOWN

## Comparative Air Transport Record for October

	(CAA Figures)			
	August 1938	September 1938	October 1938	October 1937
Companies operating	20	20	18	18
Companies reporting	20	20	18	18
Revenue Passengers	122,735	128,054	131,689	99,013
Total Passengers	143,488	139,297	143,993	113,539
Express (pounds)	623,770	877,564	855,151	684,241
Express pound miles	367,246,402	463,453,744	482,787,393	427,281,099
Miles flown	6,360,401	6,151,147	6,302,438	6,084,747
Revenue Passenger miles	46,171,246	49,493,504	51,502,073	42,335,621
Total Passenger miles	56,404,509	54,905,506	56,828,286	49,186,173
Revenue passenger load factor	51.93%	58.14%	58.49%	52.03%

<sup>1</sup> Revision of previously published figures.

\$210,000 Brazilian  
Order to No. American

Los Angeles, Dec. 10—The Brazilian government has ordered an unannounced number of military training planes costing about \$210,000, from North American Aviation, Inc., raising company's backlog to more than \$15,000,000. In the first 11 months of 1938 North American has produced \$8,381,043 in aircraft. During November 59 planes were delivered to the Army Air Corps, and at the present time the 3,000 employees are concentrating on the 200-plane order for Great Britain which in itself totals about \$8,000,000. J. H. Kindelberger, president, has recently returned from England and France, where he conducted negotiations looking to further business.

## Seversky Application

Seversky Aircraft Corp. has filed an application with the Securities & Exchange Commission for registration, under the Securities Exchange Act of 1934, of 220,000 shares of \$1 par value common stock on the New York Curb Exchange. The shares are to be registered upon notice of issuance. Company has outstanding demand promissory notes in the principal amount of \$770,000, the 10 holders having the right at their option to convert before Nov. 14, 1939. The shares have not been registered under the Securities Act of 1933. The company reports it has no funded debt and no subsidiaries. Charter permits a maximum of 2,000,000 shares. Total outstanding is 580,000 shares. No securities have been sold since Dec. 31, 1937.

## Fleet Capitalization Plan

Toronto, Ont., Dec. 19—Stockholders of Fleet Aircraft, Ltd., today unanimously approved an increase in authorized capital from 100,000 shares no par to 200,000 shares no par. The additional shares will be sold for not more than \$1,000,000 or such greater amount as the board of directors may from time to time determine and as may be authorized by the secretary of state for payment of fees payable on such greater amount.

Fort Erie, Ont., Dec. 14—In a move that will more than double its capacity at Fort Erie, the Fleet Aircraft Ltd., of Canada yesterday awarded a contract to Oscar C. Teal, local contractor, for construction of a 140 by 280-ft. plant unit foundation. Total cost of the new unit is expected to exceed \$100,000, exclusive of machinery. The expansion will enable Fleet to handle its share of British orders for the Royal Air Force.

Ryan Considers Move  
to Increase Capital

San Diego, Cal., Dec. 10—Directors of Ryan Aeronautical Co. have asked written consent of stockholders to increase authorized capital stock to 500,000 shares of \$1 par common stock from the present 300,000 shares now outstanding. In a letter to holders, Claude Ryan, president, also reveals plans to offer rights to subscribe to additional shares on the basis of one share for each four now held, at a price to be determined.

"The increase in capitalization is deemed advisable at this time in order to properly prepare for the completion of orders now on hand and in prospect," the president wrote in his letter. "It is anticipated that the proceeds . . . will be used for expansion of plant, additional equipment and for working capital."

It was reported that during the first 8 months of the year net sales exceeded by 26.8% the total for the entire year of 1937, which was about 136% above 1936.

Lloyd Stearman Joins  
New Aircraft Group

Lloyd Stearman, airplane designer, is now associated as chief engineer with the newly organized Airplane Engineering Corp. of San Francisco, it was revealed in Washington when Thomas F. Ryan III, executive vice-president of Mid-Continent Airlines, asked permission of the CAA to withdraw an application by which Mr. Ryan was seeking approval of a contract employing Mr. Stearman.

The new corporation is understood to be strongly financed and plans to engage in aircraft production after a series of designs are prepared. Designs will be submitted first to potential air transport purchasers, it is understood. Frederick Huitt is general manager of the new company. Stearman has completed a survey of feeder route possibilities for Mr. Ryan.

## Canadian Cub Shares

Montreal, Dec. 9—Additional no par value common shares of Cub Aircraft Corp., Ltd., amounting to 3,000 shares, were called for trading on the Montreal Curb Market today. They complete an original option of 20,000 shares granted to Hansell & Co., of Toronto, all of which have now been taken under terms of the agreement. A total of 70,007 shares of common is issued and outstanding, including 49,211 shares held in pool.

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CUB 1937 J-2—A-1 condition. Lights, tailwheel. Engine topped, just relicensed. Wonderful performance. Will trade. Lee Miller, 1503 Manchester Avenue, Columbus, Ohio.

SKIS—Used and reconditioned. Approved. Stock moving fast. Write at once for our attractive prices. Federal Aircraft Works, Minneapolis, Minn.

Typewriter \$9.00, Duplicator \$14.95, Adder \$37.00, Addressor \$15.00. Write FREE Bargain List PRUITT, 40 Pruitt Bldg., Chicago, Ill.

Simplified Seaplane  
Ramp Put on Market

Marketing has been launched of the Marianno lift seaplane ramp, (invention of which was announced in AMERICAN AVIATION Aug. 1) according to Vito Marianno, who describes it as "a simple, practical landing means inexpensive to build and maintain." Attached to any pier, bulkhead, dock or barge, the ramp is submerged on a 7-degree slope, boat or pier. When lowered, the tip is always fixed at about five feet below the waterline at either high or low tide. The plane taxis to the ramp which then can be raised in about 30 seconds to the horizontal level of the boat or pier where the plane may discharge its cargo.

"Due to the fact that the ramp is balanced and counterweighted, only 7-hp. is required to move the mass and overcome friction," the company states. The ramp is said to be unaffected by formation of ice, slime, seaweed, or other impediments. When not in operation, it is held in a horizontal position, level with the boat or pier to which it is attached. For larger seaplanes or flying boats a flush type dolly deck is available. The mechanism, which lifts a maximum of 12-ft., can be operated by pushing a button.

## Harlow at Alhambra

Pasadena, Cal., Dec. 15—Harlow Engineering Co., with offices at 2112 Oakdale Ave., Pasadena, has taken over a hangar at Alhambra Airport in preparation for production of its four-place, Warner-powered all-metal monoplane. According to the Los Angeles Chamber of Commerce, the ship will sell for \$6,000 or \$7,000, and incorporates retractable landing gear. Gross load will be 2,600-lbs.



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## Great Britain Leads Nov. Buyers; Peru Gets Large License

Great Britain and Japan led in the actual purchase of aeronautical products from the United States during November, according to the Department of State figures, which also reveal that Peru was granted the largest export license.

Countries holding licenses may take delivery of equipment at any time in the future, pending its completion. Seven licenses in excess of \$100,000 were issued in November, as follows:

Peru	\$886,328.60
Netherlands	467,959.62
Great Britain	252,176.02
Brazil	211,970.03
China	202,564.09
France	136,527.00
Czechoslovakia	115,500.00

Sixteen countries, including Great Britain and Japan, purchased aircraft, engines and spare parts in excess of \$10,000 during November. The complete list is as follows:

Great Britain	\$993,516.10
Japan	564,754.00
France	221,227.00
Brazil	217,432.00
Siam	153,730.00
Netherlands	140,160.12
Russia	128,733.00
Netherlands Indies	93,504.00
Argentina	93,436.00
Mexico	57,880.00
China	34,954.00
Colombia	32,350.00
Bolivia	27,000.00
Union of South Africa	22,610.63
Estonia	20,589.00
Australia	10,375.00

Countries buying smaller amounts included Canada, Ecuador, Italy, New Zealand, Sweden, Switzerland, Turkey and Venezuela.

## Contracts

The following contracts were awarded by the Army Air Corps on Dec. 13: **Champion Spark Plug Co.**, Toledo, Ohio, spark plugs, \$154,262.66.

**Monsanto Chemical Co.**, Fibreloid Div., Indian Orchard, Mass., plastic sheet, \$69,068.00.

**Fairchild Aerial Camera Corp.**, Jamaica, L. I., N. Y., aircraft cameras and cone assemblies, \$99,744.21.

The Department of Labor during the week ended Dec. 10 announced that the Army Air Corps had awarded a \$12,220.25 contract for film to the Agfa Ansco Corp., Binghamton, N. Y.

## Aero Patents

**2,139,966:** Control of Gearing for Driving Superchargers on Aircraft Engines. Issued to Herbert Langley Towns and Gerard Mervyn Cutler, Coventry, England, assignors to Armstrong Siddeley Motors, Ltd., Coventry, England.

**2,140,095:** Control of Wing Flaps on Aircraft. Issued to William Denis Learoyd Theed, London, England, assignor to Sir George Godfrey and Partners, Ltd., London, England.

**2,140,982:** Propeller Blade Pitch Regulator. Issued to Charles L. Smith, San Diego, Calif.

**2,140,983:** Engine Starting Apparatus. Issued to Raymond P. Lansing, Montclair, N. J., assignor to Eclipse Aviation Corp., East Orange, N. J.

**2,140,937:** Servo Mechanism. Issued to Leon N. Swisher, Brooklyn, N. Y., assignor to Sperry Gyroscope Co., Inc., Brooklyn, N. Y.

**2,140,191:** Gyromagnetic Compass. Issued to Hans Schuchardt and Gert Zoeger von Manteuffel, Berlin, Germany, assignors to Askania-Werke A. G.

**2,140,264:** Retractable Landing Gear. Issued to Charles H. Kingham, Louisville, Ky.

**2,139,981:** Automatic Device for Regulating Fuel Injection in an Internal Combustion Engine. Issued to Shuichi Sugihara, Toda-Machi, Naka-ku, Nagoya, Japan, assignor to Mitsubishi

## Stock Holdings

Following is an official summary of transactions and holdings of officers, directors and principal stockholders, filed with the Securities & Exchange Commission Nov. 1-10. Unless otherwise indicated, transactions were made in October and holdings are as of the end of that month:

**Aero Supply Mfg. Co.**—Luke E. Graham, officer and director, decreased 200 Class B to 500.

**Bell Aircraft Corp.**—Charles L. Beard, officer, holds 700 common and decreased warrants 115 to 135. Lawrence D. Bell, officer and director, holds 32,710 common and decreased warrants 8,271 to 9,579. J. F. Schoellkopf, Jr., director, decreased common 500 to 1,500. Ray P. Whitman, officer and director, holds 7,300 common and decreased warrants 1,390 to 1,610. Robert J. Woods, director, holds 5,400 common and decreased warrants 1,274 to 1,476.

**Boeing Airplane Co.**—William L. Allen, director, decreased 75 common to 37.

**Breeze Corps.**—A. L. Johnston, Jr., director, decreased 100 common to 900. John W. Young, officer and director, decreased 250 common to 8,323 and holds 300 each in trust for John R. Young, Mary E. Young and Martha J. Young.

**Brewster Aeronautical.**—John R. Hunt, officer and director, decreased 200 common warrants to 900.

**Consolidated Aircraft Corp.**—David G. Fleet, director, increased common 200 to 1,500 and holds 216 conv. pfd.

**Ex-Cell-O Corp.**—Frank W. Andrae, director, gave away 4,000 common, leaving 7,260.

**Grumman Aircraft Engr. Corp.**—L. R. Grumman, officer and director, decreased 10,000 common to 124,160. L. A. Swirbul, officer and director, decreased 10,000 common to 46,500.

**Lockheed Aircraft Corp.**—Lawrence C. Ames, director, decreased 500 to 7,000. Randolph C. Walker, director, holds 300 directly; through Mrs. J. S. Walker, wife, decreased 1,500 to 12,900.

**National Aviation Corp.**—Aviation Secur. Corp., benef. owner, decreased 1 common to 61,650 by exchange.

**North American Aviation.**—Jas. H. Kindelberger, officer, decreased 400 common to 18,900.

**Pan American Airways Corp.**—Robert G. Thach, officer, decreased 300 common to 526. Evan E. Young, officer, decreased 500 common to 500.

**Penn-Central Airlines.**—John H. Coulter, director, decreased 1,700 to 14,800. **Sperry Corp.**—Thomas A. Morgan, officer and director, decreased 1,000 com. vtd. to 500.

**United Aircraft Corp.**—Donald L. Brown decreased 720 common to 6,000. Bernard L. Whelan, officer, decreased 100 common to 200. Eugene E. Wilson, officer and director, decreased 480 common to 2,608.

**Warner Aircraft Corp.**—W. J. Jarvie, officer, decreased 100 common to 700 and holds 5,715 in escrow (prop. int. not shown).

**Western Air Express.**—Thomas Wolfe, officer and director, increased 200 common to 1,750.

Following are equity holdings of officers, directors and principal stockholders, any of whose securities have become registered with the SEC:

**Bell Aircraft Corp.**, common: Robert J. Woods, dir. 5,400 Jan. 1937 Common warrants

Robert J. Woods, dir. 2,750 Jan., 1937

Following are equity holdings filed by persons becoming officers, directors or principal stockholders of issuers having any securities registered:

**Transcontinental & Western Air:** L. G. Fritz, officer none Sept., 1938

**Jukogyo Kabushiki Kaisha**, Tokyo, Japan.

**2,139,878:** Hydropneumatic Automatic Pilot. Issued to Bert G. Carlson, Freeport, N. Y., assignor to Sperry Gyroscope Co., Brooklyn, N. Y.

**20,948:** Quick Reading Altimeter. Issued to Paul Kollman, New York, N. Y.

**2,140,254:** Device for Operating Internal Combustion Engines with Mixtures of Ammonia, Hydrogen, and Nitrogen, prepared from Ammonia. Issued to Mario Zavka, Terni, Italy, assignor to Ammonia Casale Società Anonima, Lugano Massagno, Switzerland.

**2,139,694:** Air-Speed Acceleration Recorder. Issued to Henry J. E. Reid and Richard W. Rhode, Hampton, Va.

## Aviation Stock Trends

WEEKLY AVIATION AVERAGES  
(1937-1938)

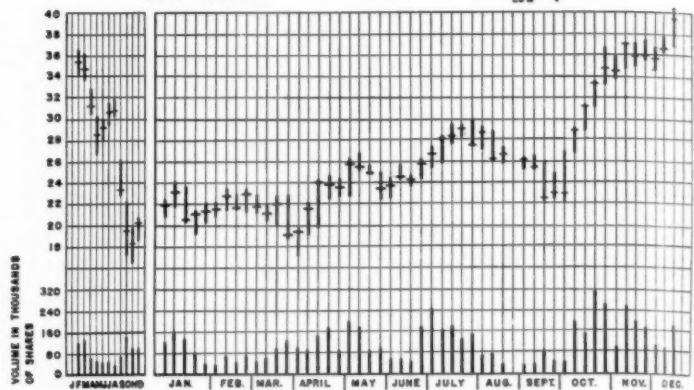


Chart Data Supplied by Wyckoff Associates, Inc., Comment by Philip P. Friedlander

In discussing technical phases of the stock market, John R. Keane once pointed out that any group of stocks that withstand general market selling was the group to follow for the next rally move. The wisdom of this observation is apparent when study is made of the recent action of the aviation securities. Notwithstanding the shock of a general stock market decline, the aviations failed to go down. Suddenly, they came to life, spurred over the barriers of the 1937 highs, and went into new high territory in the 40 area.

The probabilities that at this point some sort of a retreat is necessary is entirely plausible. But such temporary weakness should be used by investors to purchase these equities. For if indications work out, aviation stocks

should seek higher levels. The first real stop should be in the 43 zone, and the longer term outlook is for the compiled averages to go to 48. If, at this current level, aviations back and fill, trading opportunities will be given for those who use the well-defined areas as a basis for their studies.

Hint that a substantial correction move is nearby will be given when these averages, prompted by outside influences, soar with dangerous rapidity. At this moment the horizon seems clear and better prices appear imminent.

## Wright Aero. Bonus

Paterson, N. J., Dec. 24—A Christmas bonus of \$84,000 was distributed last night by Wright Aeronautical Corp. A total of 4,200 employees each received a check of \$20.

## Leading Aviation Stocks

### NEW YORK STOCK EXCHANGE

	Week Ending Dec. 10			Week Ending Dec. 17			
	High	Low	Net Change	High	Low	Net Change	Sales
Aviation Corp.	7 3/4	6 3/4	...	7 1/2	6 3/4	+ 1/4	31,900
Bendix Aviation	24	21 1/2	+ 1 1/4	21,500	25 3/4	+ 2 3/4	96,200
Boeing Airplane	32 3/4	30 3/4	+ 3	22,000	33 3/4	+ 1 3/4	45,000
Consolidated Aircraft	26 3/4	24 1/4	+ 3/4	14,900	25 1/4	+ 1/4	14,000
Curtiss-Wright	8 1/4	6 1/2	...	36,900	7	+ 1/2	59,100
Curtiss-Wright	26 3/4	25 1/4	...	8,500	27	+ 1/2	19,500
Douglas Aircraft	72 1/2	67 1/4	+ 2 1/2	28,400	79 3/4	+ 6 1/4	49,700
Eastern Air Lines	15 3/4	14 3/4	...	12,300	16 3/4	+ 1 1/4	56,200
Ex-Cell-O	22 3/4	19 1/2	+ 1 1/2	15,200	24 3/4	+ 2 1/4	23,500
Glenn L. Martin	35	31	+ 2 1/2	46,600	35	+ 1 1/2	57,300
Natl. Aviation Corp.	14 1/4	12 1/2	+ 1/2	8,800	14	+ 5/8	10,900
N. American Aviation	16 1/2	15 1/4	+ 1 1/4	47,100	18 1/4	+ 1/2	92,600
Sperry Corp.	45	39 1/2	+ 4 1/2	59,100	49 3/4	+ 4 1/4	80,000
Thompson Products	26 3/4	25	+ 1	2,300	28	+ 1 3/4	4,900
TWA	9 1/4	8 3/4	...	4,200	9 3/4	+ 1/4	9,200
United Aircraft	39 1/4	36 3/4	+ 1 1/2	44,600	42 1/2	+ 2 1/2	84,300
United Air Lines	12 3/4	11 1/4	+ 1/2	14,500	12 1/4	+ 1/4	20,500
Wright Aeronautical	113 1/2	103 1/2	+ 2 1/2	140	117 1/2	+ 3 1/2	390

### NEW YORK CURB EXCHANGE

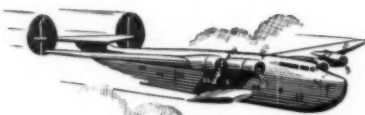
	Week Ending Dec. 10			Week Ending Dec. 17			
	High	Low	Net Change	High	Low	Net Change	Sales
Aero Supply A	22	22	+ 1 1/2	...	...	...	4,600
Aero Supply B	5 1/2	5	+ 1/2	1,900	5 3/4	+ 1/4	3,600
Air Associates	10 3/4	9 1/2	...	1,900	12 1/4	+ 1 1/2	3,200
American Airlines	20	18 3/4	...	3,000	19 3/4	+ 1/2	13,700
Aviation & Transp.	3 1/2	3 1/4	...	13,400	3 1/2	...	9,100
Beech Aircraft	4 3/4	4	+ 3/4	4,600	5 1/4	+ 1/2	19,600
Bell Aircraft	29 1/2	24 3/4	+ 4 3/4	15,100	34 3/4	+ 4 1/2	4,700
Bellanca Aircraft	10 3/4	9 3/4	+ 1/2	8,000	10 1/2	...	4,200
Breeze Corps	8 1/4	7 1/2	+ 1/2	4,800	8	...	10,500
Brewster Aero	10 3/4	9 1/4	+ 1/2	11,600	10 3/4	...	6,800
Fairchild Aviation	9 1/2	8 3/4	+ 1/2	4,300	10	+ 1/2	7,300
Grumman Air. Eng.	19 1/4	17 1/2	+ 1/2	6,500	18 3/4	...	1,600
Irving Air Chute	17 3/4	16 3/4	+ 3/4	1,800	17 3/4	+ 1/2	40,400
Lockheed Aircraft	30 3/4	27 3/4	+ 1 1/2	46,200	32 1/4	+ 2 1/4	...
Pan American Airways	17 3/4	16 1/2	...	5,800	...	...	800
Penn Central Airlines	8	7 3/4	...	1,000	8	...	...
Seversky Aircraft	5 3/4	4 3/4	...	11,300	5 1/2	+ 1/2	14,600
United Aircraft war	...	...	...	...	...	...	800
Waco Aircraft	5 1/2	5 3/4	+ 1/2	200	5 3/4	...	...
Western Air Express	4 3/4	4 1/4	+ 1/2	1,700	4 1/4	...	1,200



# Again in '38-

## PESCO played a part in every major air achievement . . .

THE WORLD'S most famous flyers, the leading aviation manufacturers and air transport companies, and the most progressive military Air Corps again showed their preference for PESCO products while writing one of the most impressive chapters in Aviation History. As the world still acclaims their 1938 achievements, PESCO is cooperating with them for even greater progress and development in the future.



World's largest air liner, Pan American Airways  
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Howard Hughes' record 'round the world flight.  
*Lockheed 14—Pesco equipped*



America's largest land plane for transport use.  
*Douglas DC 4—Pesco equipped*



Turner's world-record Thompson Trophy victory.  
*Pesco Special—Pesco equipped*



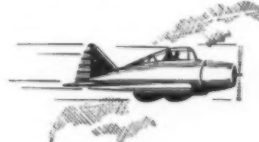
United's 25,000th scheduled coast-to-coast flight.  
*Douglas DC3's—Pesco equipped*



Cochran's and Fuller's Bendix Trophy victory.  
*Seversky—Pesco equipped*



World's greatest weight-carrying U.S. army bomber.  
*Boeing XB-15—Pesco equipped*



New Pursuit Plane speed record for army.  
*Seversky P-35—Pesco equipped*



Navy's largest patrol bomber, 35-ton flying boat.  
*Consolidated XPB2Y-1—Pesco equipped*

. . . and many others



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**1936** CONSTANT SPEED PROPELLERS. Offering improved performance through automatic change of pitch, Hamilton Standard constant speed propellers become the most universally used item of aviation equipment in the world.

**1939** QUICK-FEATHERING PROPELLERS. The immediate and general acceptance of the Hydro-matic quick-feathering propeller for use on military airplanes and on the nation's airlines shows it to be worthy of a place in the distinguished record of Hamilton Standard achievements.

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